

EFFECTIVENESS OF COMPUTER ASSISTED DIVERSIONAL THERAPY
ON PAIN AND BEHAVIOURAL RESPONSES DURING VENI PUNCTURE
PROCEDURES AMONG PRESCHOOL CHILDREN
ATTENDING OPD IN MASONIC HOSPITAL
AT COIMBATORE

A DISSERTATION SUBMITTED TO THE TAMIL NADU DR. M.G.R. MEDICAL
UNIVERSITY, CHENNAI, IN PARTIAL FULFILMENT OF THE REQUIREMENT
FOR THE DEGREE
OF MASTER OF SCIENCE IN NURSING
2010 – 2012

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Certified Bonafide Project Work

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COLLEGE SEAL

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Gratitude is when memory is stored in the heart and not in the mind.

- Lionel Hampton

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ABSTRACT

Children, especially younger ones, typically remember their past experiences during medical visits. This fear may be heightened when the child finds themselves in the same environment of a treatment room surrounded by unfamiliar people and facing a possibly painful experience. Loss of autonomy and control may cause the young child a great deal of anxiety.

Computer assisted diversional therapy may help to reduce children pain and behavioral responses. This kind of diversion distracts the child during painful veni punctures, which modifies the pain and behavioral responses in preschool children.

Study was done to assess the effectiveness of computer assisted diversional therapy on pain and behavioural responses during veni puncture procedures among preschool children attending OPD in Masonic hospital, Coimbatore

The study was based on evaluative approach. The design used was quasi experimental non equivalent control group post test only design. The conceptual framework of the study was based on the Katherine Bernard Parent Child Interaction Model., purposive sampling technique was used to select 200 samples for the study, 100 sample for experimental group and 100 samples for control group. The demographics variables were collected in both experimental and control group. For the experimental group the children were given options to select known games or desired animations. the video or games were played with the use of laptop 5 minutes before the venipuncture procedure during the venipuncture procedure computer assisted diversional therapy was given for 5 minutes simultaneously the researcher assessed the pain using Wong Bakers face pain scale and behavioural responses using Observed Child Distress scale during the procedure, after the veni puncture also the computer assisted diversion was continued for further five minutes and total duration of diversion was for 15 minutes. For the control group standard hospital routine were carried out and both pain and behavioural responses were assessed using Wong bakers face pain scale and observed child distress scale. The data gathered were analysed employing descriptive and inferential statistics.

The study results showed that the mean score and standard deviation of pain in experimental and control group was 14.78 (SD±4.72) and 18.82 (SD±5.13) respectively. The independent “t” test score of pain was (‘t’ value = 5.5) which was significant at the level of 0.05. The mean score and standard deviation of behavioural response in experimental and control group was 4.28(SD±1.67) 5.69(SD±2.09) respectively, the independent “t” test score of behavioural responses was (“t” value =5.25) which was significant at the level of 0.05

The study findings revealed that diversional therapy during veni puncture may reduce the pain and behaviour responses among preschool children.

CHAPTER - I

INTRODUCTION

Children are unpredictable. You never know what inconsistency they're going to catch you in next.

~Franklin P. Jones

BACKGROUND OF THE STUDY

Preschoolers are constantly on the move, exploring their world with exuberance, curiosity, and a seemingly endless source of energy. A child's capacity for learning in this stage is enormous. Preschool-age children learn and develop from every experience, relationship, and adventure they encounter. Having the space and opportunity to explore objects and play environments helps preschool children develop their imagination and master the motor, cognitive, language, and social skills that are essential for future development.

Rossen & McKeever,(1996).

Knowledge about preschoolers' fears in the hospital is mostly based on the information given by parents or nurses and covers fear experienced in a certain procedure or situation in nursing care. In the hospital, a preschooler can also have typical fears of that particular developmental stage, such as the fear of unfamiliar people, and separation from parents. Preschoolers are also afraid of failure, loss of control, being criticized or rejected, and punishments for real or imagined misbehaviour

Alsop & Mohay, (2001)

Being brought to the hospital causes fear and anxiety in 4 to 6-year-old children. According to parents, 83% of preschool or kindergarten-aged children suffer from different kinds of anxiety symptoms related to hospital fear even after a single visit.

Rossen & McKeever,(1996).

Pain relief is a human right, yet pain in children is an under-recognized problem around the world. The Special Interest Group on Pain in Childhood of

the International Association for the Study of Pain is dedicated to improving pain prevention and treatment for children everywhere. Children not only have pain from injuries, surgery, burns, infections, and the effects of war, terrorism, and violence. Children also undergo pain from the many procedures and investigations used by doctors and nurses to investigate and treat disease. Even newborn and premature babies feel pain. Children remember pain, and may avoid future medical care because of painful experiences in a hospital or clinic. Children's pain is not diverted adequately, even though we do have the ability to prevent most pain. Most pain can be either prevented, or at least reduced using, psychological, and physical techniques. In spite of this, most children in the world do not receive adequate distraction from the painful stimuli.

Rossen & McKeever,(1996).

Pain is a subjective experience and infants and children respond to pain with behavioural reactions that depends upon their age and cognitive process. Pain may occur as a result of procedure. The degree of pain perception varies from child to child, the preschool children still have limited ability to understand anything beyond the immediate event. They may see themselves as the cause of pain and fear mutilation, body invasion and loss of recently gained control. They may try to delay procedures until they feel some control over the situation. Participation in the procedure or making simple choices will assist the child to maintain some control.

DORATHY. R.M(2006)

Injections of any kind can hurt! children know this pain is predictable. How they respond to a injection depends in part of their developmental age and their previous experience with shots. Intra venous and intramuscular injections should be given in such a manner that the children do not have time to build up their anxiety about the procedure. Preschool children enjoy active play, during the injection the nurse can suggest divertional activities .

DORATHY. R.M(2006)

Children experienced the most behavioral distress in the procedural phase, during an veni puncture and girls exhibited more distress than boys. The parents' coping modes were not associated with their children's distress

Lynda L. LaMontagne(2004)

Diversional therapy has been used successfully as an intervention to decrease children's pain and behavioral responses during painful procedures. However, diversional therapy protocols differ in various ways, most notably in the attention required by the participant to engage in the distraction. The effectiveness of distraction lies in its ability to divert attention away from the painful stimulus. The brain has a limited capacity to focus attention on stimuli. Therefore, using up additional resources while engaging in a distracting task leaves little capacity for attending to painful stimuli. Therefore using up additional recourses while engaging in a distracting task leaves little capacity for attending to painful stimuli , hence distraction, self hypnosis, cartoon's can reduce the pain perception by diverting attention away from painful stimulus and towards focal points.

Jill E. Mc Laren (2003)

Lot is said about the dangers of letting children watch too many video games, but those who treat children find the pastime valuable when it comes to diverting the attention of their young charges. That is because, anecdotally, the video games distract the young patient's attention away from the pain that accompanies dressing changes. Professionals at hospitals have just embarked on a study to prove that the specialized video game system they are using is an effective means of diversion therapy.

Nancy D. RN(2000)

Venous access is cited as the most feared and painful part of a child's hospitalization, but distraction is a well investigated and supported intervention. Early work combined multiple modalities of potential distraction: breathing

control, visual and auditory stimulation, and tasks. In contrast, the children exposed to cartoon movie decreased venipuncture distress more than an interactive toy. The authors suggested that children's anticipatory anxiety may have interfered with their ability to play with the interactive toy. The contribution of patient control and choice has been demonstrated to be helpful, but its contribution in combination with other factors has not been quantified.

Lindsey L. Et All.(2008)

Various explanations for the mechanism of distraction have been presented in the gate control theory, which provides an explanation of the role of distraction in pain reduction. This theory proposes that the pain is modulated in the central nervous system and cognitions belief and emotions can dismiss or heighten pain perception. Thus, distraction, which is recognised as diverting attention away from the painful procedure, is an example of the technique that can partially shut the gate and decrease pain experiences.

Crystal M.S.Lim(2006)

NEED FOR THE STUDY

The world paediatric population of 0-5 years in Asia, Japan is 5947000 million, Singapore is 242000 million children, in China there are about 9255500 million children, New Zealand has a population of 272000. among which 70% of the world paediatric population visit hospital on regular basis for minor illness.

WHO west pacific report(2006)

The census of India for the year 2011 of 0-6 year children is 82952135 million population of male children and 75837152 million populations of female children. The Tamil Nadu government states that the number of children attending preschool under the ICDS programme has been continuously increased for about 17 million in March 2002 and 23 million in 2005. The population of 0-6 year children in 2011 census report of Tamil Nadu is

3542351 boys and 3352470 girls. But The health infrastructure of the Tamil Nadu government states that at least 12.09 million paediatric population visit hospitals regularly.

Tamil Nadu census (2011)

Venipuncture is a procedure used for cannulation and puncturing the vein for drawing blood for laboratory investigations. Venipuncture causes moderate to severe pain in a substantial number of children. Some institutions have procedures for minimizing the predictable pain of venipuncture especially in children. However a survey from the united state report that emergency department rarely use drugs to reduce pain during veni punctures in children. In less predictable situation such as emergency department, non-pharmacological alternative such as distraction may be more appropriate.

Moore A et all(2009)

Pain and discomfort are predictable during many medical procedures. In the past drugs have been the conventional means to alleviate pain but in many instance medication by themselves do not provide optimal results. Current advancements have been made to control pain both the science of pain medication and the science of human mind. Various psychological technique including distraction by virtual reality environment and the playing of video games are being employed to treat pain.

Mark DW Et all.,(2009)

Children easily distract even though they have different temperaments. In order to decrease painful experience during procedures diversional activity in the form of play, games, video cased recorder, television can be used.

Whaley and wongs (1999)

A study on effectiveness of distraction or children's pain and distress during medical procedure. A Meta analysis. Procedures were used to analyse 16

studies (total 491) on children's distress behaviour and 10 studies (total n=535) in children's pain. For distress behaviour, the mean effect size $0.33(\pm 0.17)$ with 47% of the variance accounted for by sampling and measurement error. For pain, the mean effect of size was $0.62(\pm 0.42)$ with 35% of the variance accounted for pain.

Kleiber, dennis c Et all.,(1999)

Observational assessment is an important component of a comprehensive evaluation of the children's procedural pain. This study used the principal component analysis to evaluate the structure of the children's behaviour during active immunization. Video tape of 156 children was done and result indicate that a four component solution was the most appropriate categorization and 61.2% of variance in children's behaviour the first three components are verbal fear, escape behaviour, vocal pain. The final components were often verbal behaviour (non procedural talks and negative verbal emotions).taken together the collective components from the abbreviations it is clear that children's fear is multi dimensional experience and should be evaluated as such

Jim Mac Laren Et All(2007)

Children who were distracted by television rather than by their mothers during venipuncture reported less pain, The difference between these two approaches is that the former is active and involves affectivity, although fear may be transmitted to the child, whereas the latter is passive."In this study, 69 children aged 7 to 12 years undergoing venipuncture were randomized to receive no distraction procedure (controls), active distraction by their mother, or passive distraction by a television cartoon. After venipuncture, the mothers and children scored the intensity of pain during the procedure. Children's self-rated pain levels were 23.04 ± 24.57 in the control group, 17.39 ± 21.36 in the maternal distraction group, and 8.91 ± 8.65 in the television group. The corresponding pain levels rated by the mothers were 21.30 ± 19.9 , $23.04 \pm$

18.39, and 12.17 ± 12.14 , Both the mothers' and children's rating scores suggested that procedures performed during television watching were perceived as being less painful than procedures performed during active or no distraction. TV watching was more effective than active distraction,

Laurie Barclay et al(2007)

Effectiveness of parental positioning and distraction on the pain, fear and distress of the paediatric patient undergoing venipuncture. An experimental comparison group design was used to evaluate 43 patient (20 experimental and 23 comparison) who were 4-11 years old. Experimental participant stated their pain and fear, parents and child life specialists (CLS) rated the children's fear and CLS rated the children's distress. Self reported pain and fear were highly correlated ($p < .001$) but not significantly different between the two group fear rate. CLS ($p < .001$) and parents ($p = 0.03$) was significantly lower in experimental participant although no difference was found in distress between the two groups a significant time trend was discovered ($p < .001$). The parental positioning- distraction intervention has the potential to enhance positive clinical outcome with a primary benefits of decreased fear.

Daiva bieri et al(2004)

The investigator during her clinical experience felt that children are often exposed to painful procedures in hospitals. One such common procedure is veni puncture which is a very painful procedure for children. Thus, the investigator is interested to emphasize on the measures of pain relief and less behavioural response by using modernized technological instruments such as laptop in showing video games, rhymes and animated songs.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of computer assisted diversional therapy on pain and behavioural responses during veni puncture procedures among preschool children attending OPD in Masonic hospital, Coimbatore.

OBJECTIVES

1. To assess the post test score of pain and behavioural responses during veni puncture procedures among preschool children in experimental group.
2. To assess the post test score of pain and behavioural responses during veni puncture procedures among preschool children in control group.
3. To compare the post test score of pain response during veni puncture procedures among preschool children between experimental group and control group.
4. To compare the post test score of behaviour response during veni puncture procedures among preschool children between experimental group and control group.
5. To find the association between post test score of pain during veni puncture procedures among preschool children with their selected demographic variables in experimental group.
6. To find the association between post test score of behavioural responses during veni puncture procedures among preschool children with their selected demographic variables in experimental group.

OPERATIONAL DEFINITIONS

Effectiveness:

It means producing an intended result.

Kindersley D.,(2007)

In this study it refers to the extent to which the computer assisted diversional therapy has brought significant difference in reducing pain and behavioural responses measured by statistical measurements.

Diversional therapy

A tactic use to draw attention away from the real threat or action

Oxford dictionary(2009)

In this study diversion is given by using demo video game , rhymes English and Tamil, animates video songs were shown to preschool children. According to the child selection of game or rhymes, it was played for the child to watch. The diversion is started before the child is seated for venipuncture for a duration of 5 minutes, during the procedure of venipuncture for 5 minutes and continued for 5 minutes after the procedure totally the computer aided diversion therapy took a duration of 15 minutes

Pain

Pain is an unpleasant sensory and emotional experience associated with potential tissue damage

Don Ranney.,(2008)

In this study it refers to the pain during veni puncture procedures. which is measured by using Wong Baker's face pain rating scale and its score.

Behavioural responses

Behavioural responses means relating to the behaviour of a person and the child will give the aggregate of the responses to internal and external stimuli.

Oxford Dictionary (2009)

In this study it refers to the behavioural responses like pain verbalisation, cry/screams, request for termination of procedure, refusing to assume body position, muscular rigidity, requiring physical restrains of the child undergoing veni puncture procedure. Which is measured by using Observed Child Distress Scale (OCDS) and its scores.

Veni puncture procedure

The puncture of the vein especially to take a sample of venous blood or inject a drug.

Brenner and Sitharth (2003)

In this study veni puncture refers to collection of blood sample and administering intravenous injection in the out patient department.

Preschool children

A child who is attending a preschool or kinder garden age ranging between 3-6 years.

Dorathy r Marlow

In this study preschool children fall between the age group of 3-6 years.

HYPOTHESES:

- H₁ – The mean post test score of pain in experimental group significantly lower than the post test score of pain in control group.
- H₂ – The mean post test score of behavioural responses in experimental group significantly lower than the post test score of behavioural responses in control group.
- H₃ - There will be a significant association between the pain during veni puncture procedures among preschool children with their selected demographic variables in experimental group.
- H₄ - There will be a significant association between the behavioural responses during veni puncture procedures among the preschool children with their selected demographic variables in experimental group.

ASSUMPTION

Preschool children during veni puncture procedure will experience pain and elicit behavioural changes

Nurses have a major role to reduce pain and behavioural responses among preschool children during veni puncture procedure.

DELIMITATIONS:

The sample size was limited to 200.

The data collection period was 5 weeks.

PROJECT OUTCOME:

The computer assisted diversional therapy, will help to reduce pain and behavioural responses among preschool children undergoing veni puncture procedure. This will enlighten the effectiveness of computer assisted diversional therapy in reducing pain responses and behavioural responses, thereby it will help the preschool children to promote comfort, physical and mental well being and also reduce the fear of hospital visits during illness.

II. CONCEPTUAL FRAME WORK

A conceptual frame work or model is made up of concepts that are mental image of a pheomenon. These concepts are linked together to express their relationship between them The conceptual framework set up for the study is modifications based on “KATHRYN BARNARD PARENT CHILD INTERACTION MODEL. Conceptual framework helps to express abstract ideas in a more reality understandable or precise form of the original conceptualization.

The theory component are as the follows:

Caregiver characteristics

- Sensitivity to cues
- Alleviate the infants distress

Children characteristics

- Response to care giver

Children characteristics:

According to the theorist To participate in a synchronous relationship the child has to send cues to his care giver. The skill and clarity with which these cues are sent will make it easy or difficult for the parent or care giver to understand the cues and make appropriate modifications to his/ her own behaviour. Children send cues of many kind

In this study cues like crying verbalization, fussiness escape tendency are assumed to be the cues sent by the child during the time of venipuncture The cues are continuously assessed by the caregiver using post assessment refers to the use of Wong Bakers face pain scale and observed child distress pain scale to assess the response to care giver during the procedure.

SENSITIVITY TO CUES:

According to the theorist parents/care giver must be able to accurately read the cues given by the infants if they are to appropriately modify their behaviour.

In this study before the venipuncture procedure the children may show or give cues of many kinds like crying, fear of pain, fussiness, changes in body activities and poor behavioural response .

ALLEVIATE THE CHILD DISTRESS:

According to the theorist the effectiveness of the parent in alleviating the distress of their infants depends on factors such as recognising the distress is occurring, parents must know to figure out appropriate action to alleviate the distress and must be able to put their knowledge into work.

In this study alleviate the child's distress by reducing the pain and behavioural responses in which computer assisted diversional therapy is given for experimental group and standard hospital routines are given for control group.

CARE GIVER CHARACTERISTICS:

This includes of cues and alteration of distress. Parents like infants must be able to read cues given by the infant if they are to appropriately modify their behaviour there are also other influences to the care givers sensitivity such as financial, work stress where the caregiver fails to read the cues sent by the child

Here investigator identifies the cues such as crying, fear of pain, fussiness, changes in body activity and poor behaviour responses, provides computer assisted diversional therapy using video games songs, and rhymes for the duration of 15 minutes for the experimental group. In the control group observe the preschooler with hospital routines.

RESPONSIVENESS TO THE CARE GIVER:

According to the theorist the infant must send cues to the parent/caregiver so that the parent can modify his or her behaviour .

In this study, the response to care giver is measured using pain scale and observed child distress scale, which was classified as mild moderate and severe for pain and behavioural responses.

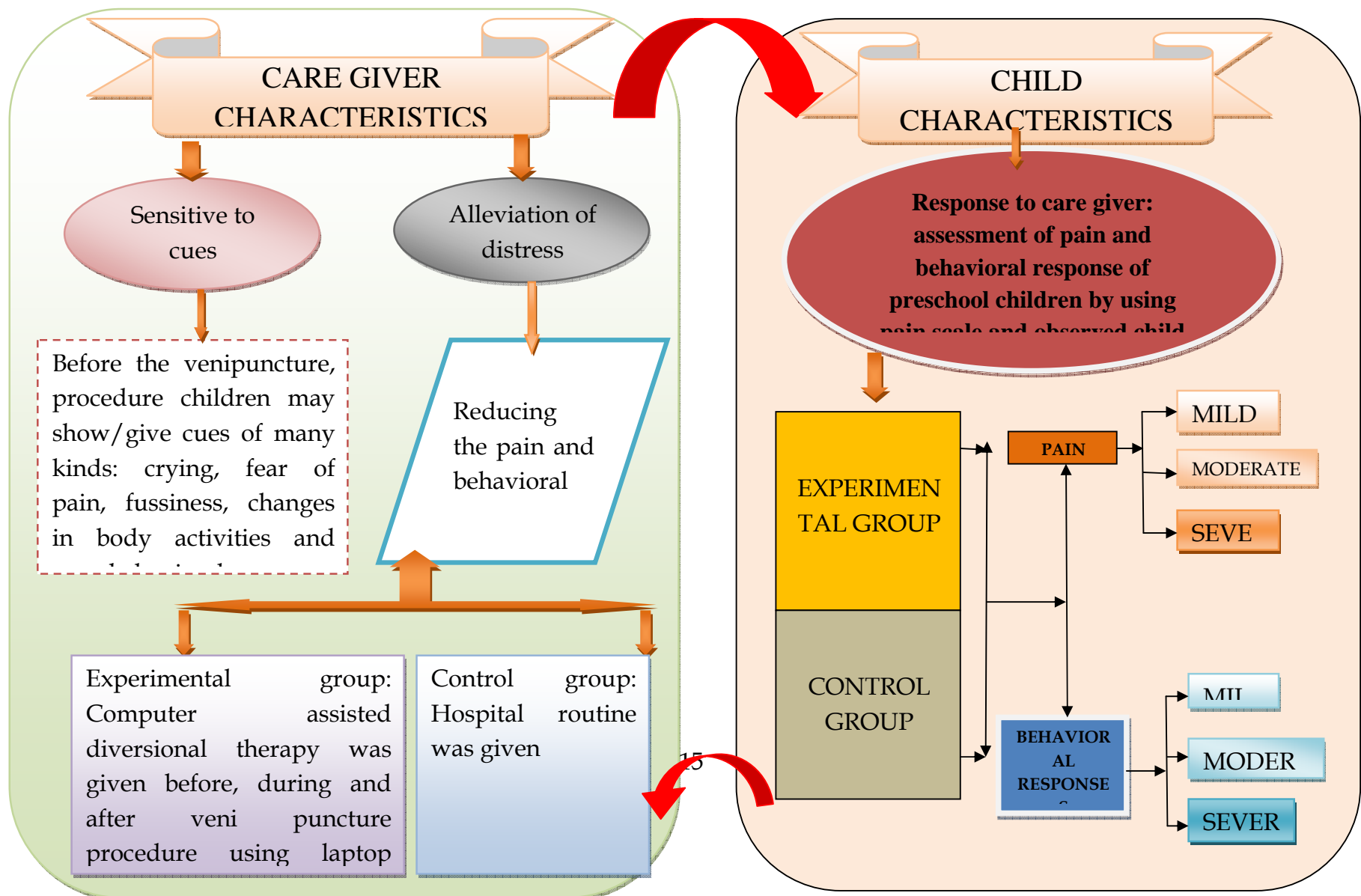


Figure 1: KATHRYN BARNARD PARENT CHILD INTERACTION MODEL

CHAPTER II

REVIEW OF LITERATURE

A number of studies have focused on diversional methods that can alter the pain and behavioural responses in children many studies have examined the effect of video aided diversional therapy on children undergoing veni punctures

The review of literature for the present study has been organized under the following headings

Review of literature it contains two parts

Part I

overview related to preschooler

overview related to pain and behavioural responses

Part II: STUDIES RELATED TO PAIN AND BEHAVIOURAL RESPONSES

SECTION A: Studies related to pain and behavioural perception for children during veni puncture

SECTION B: Studies related to diversion therapy for children's pain and distress during venipuncture procedure.

PART I:

OVERVIEW RELATED TO PRESCHOOLERS

INTRODUCTION

Children who are 3-6 years of age defined as preschooler . This timem period is a stage of continuing growth and development for your young child. He wll go through many changes in physical, mental, and social development. Preschool children can be better prepared for hospital visits than toddlers because of their more asvanced understanding of language.

MORLOW.D.R.,(2006)

NORMAL GROWTH AND DEVELOPMENT OF PRESCHOOLER

Physical development:

Movement: the child's body changes he learns to do new things, skills improve along with their balance and coordination

Children learn to focus and increase their hand skills. They can hold a book or pen firmly. Child may also learn to turn paper pages. Later the child can able to turn paper pages one at a time and write their name. On an average the preschooler gains an weight of 4.5 to 6.5 pounds every year.

Reuters.T.,(2010)

MENTAL DEVELOPMENT:

During the preschool period the child has a very active imagination they start to believe in magic fairy tales and fear of gots and monsters. They are also afraid of darkness or being alone. When children they always pretend to be another character of their favourit cartoon or game . and the child may also learn the idea of time and basic colours. They can understand what text is and recognize letters. They can retell familiar stories and follow complex directions. During this time the child learns their gender.

Reuters.T.,(2010)

EMOTIONAL AND SOCIAL DEVELOPMENT:

The parents and family has the greates influence on the preschoolers emotional development. During this time the child starts to mingle with other people they may want to do more things on their own, and this may lead to frustration and temper outbursts. Later they learn to deal with their emotions.

HOSPITAL VISITS FOR PRESCHOOLER:

The preschooler may view the hospital experience as an exciting new adventure or a dangerous, frightening experience depending on the preparation of the care giver and health professionals.

Broadribb's.et.al.,(2003)

Preschoolers are frightened about intrusive procedures; therefore it is preferable to provide diversion to children when procedures are undertaken in emergency or hospital set up.

Lindsey.L.et.al.,(2008)

OVERVIEW RELATED TO PAIN AND BEHAVIOURAL RESPONSES

INTRODUCTION

Pain is a phenomena found in all specialty of nursing. The experience of pain has a significal effect on the client's health. It is a personal feeling affecting all aspects of an individual's health. Pain is highly unpleasant and very personal sensation that cannot be shared with others. It can occupy all of a person's thinking, direct all activity, and change a person's life. Yet pain is a difficult concept for a client to communicate. A nurse can either feel or see a client's pain. No two people experience pain in the same way. In additional, the difference in individual pain perception and reaction, as well as the many causes of pain, present the nurse with a complex situation when developing a plan to relieve pain and provide comfort. Pain is more than a symptom of a problem; it is a high priority problem in its self. Pain presents both psychological and physiological damage to health and recovery. Severe pain is viewed as a emergency situation deserving attention and prompt treatment.

[BARBARA KOZIER ET ALL(2001)

NATURE OF PAIN

Pain is much more than a single sensation caused by a specific stimulus. Pain is subjective and highly individualized, and the interpretation and meaning of pain involve psycho social and cultural factors. According to McCaffery(1980) "pain is what ever experience the person says it is , existing when ever the person says it does". Pain cannot be objectively measured , such as with a x ray examination or with a blood test. Pain is a protective psychological mechanism.

[PATRECIA.A.POTTER(1993)]

Although pain is a universal experience its exact nature remains a mystery.

TYPES OF PAIN:

Pain may be described in terms of duration, location and etiology. When pain lasts only through the expected recovery period, it is called acute pain. When it has a sudden or slow onset and regardless of intensity . chronic pain, on the other hand is prolonged usually reoccurring or persisting over 6 months or longer, and interferes with functioning.

Pain can be categorized according to its origin as cutaneous, deep somatic, or visceral. Cutaneous pain originates in the skin or sub cutaneous tissue. A paper cut causing a sharp pain with some burning is an example of cutaneous pain. Deep somatic pain arises from ligaments, tendon, bones, blood vessels, and nerves. It is a diffuse and tends to last longer than cutaneous pain. Visceral pain results from stimulation of pain receptors in the abdominal cavity, cranium and thorax. Visceral pain tends to appear diffused and often feels like deep somatic pain that is, burning, aching, or a feeling of pressure.

[BARBARA KOZIER ET ALL;(2001)

THE RESPONSE TO PAIN.

Responses to visceral pain are very different from those evoked by somatic pain. Visceral pain generally results in tonic muscular spasm (teleologically, to decrease movement of the affected area) while somatic pain usually causes withdrawal of the affected part of the body ("to protect this region from further damage"). As already mentioned, the sensations reported for the two pains are also quite different.

We are all also aware that pain (be it somatic or visceral) can have profound autonomic effects. Some of the reasons for this have been alluded to: there is a good degree of cross-over between the somatic and visceral systems, notably at the level of the WDR cell and "complex neurone" in the spinal cord, but also extensively at higher centres, with projections to, for example, the

hypothalamus. Also of note is the close relationship between sensory afferents and sympathetic outflow.

GATE CONTROL THEORY

This theory explains about a pain-modulating system in which a neural gate present in the spinal cord can open and close thereby modulating the perception of pain. The gate control theory suggested that psychological factors play a role in the perception of pain.

Terms

Pain - an unpleasant sensory and emotional experience associated with actual or potential tissue damage.

Analgesia - the selective suppression of pain without effects on consciousness or other sensations.

Nociceptors - sensory receptor whose stimulation causes pain

Pain threshold: the point at which a stimulus is perceived as painful.

Sensation – the process of receiving, converting, and transmitting information from the external and internal world to the brain.

Major Concepts

The three systems located in the spinal cord act to influence perception of pain, are;

The substantia gelatinosa in the dorsal horn,

The dorsal column fibers, and

The central transmission cells.

The noxious impulses are influenced by a “gating mechanism.” Stimulation of the large-diameter fibers inhibits the transmission of pain, thus “closing the

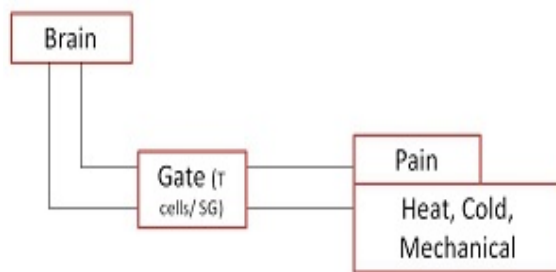
gate.” Whereas, when smaller fibers are stimulated, the gate is opened. When the gate is closed signals from small diameter pain fibers do not excite the dorsal horn transmission neurons. When the gate is open pain signals excite dorsal horn transmission cells. The gating mechanism is influenced by nerve impulses that descend from the brain. Factors which influence opening and closing the gate are:

The amount of activity in the pain fibers.

The amount of activity in other peripheral fibers

Messages that descend from the brain.

A specialized system of large-diameter fibers that activate selective cognitive processes via the modulating properties of the spinal gate.



Gate is opened by

Physical Factors - Bodily injury

Emotional Factors - Anxiety & Depression

Behavioural Factors - Attending to the injury and concentrating on the pain

Gate may be closed by:

Physical Pain - Analgesic Remedies

Emotional Pain - Being in a 'good' mood

Behavioural Factors - Concentrating on things other than the injury

The theory guided research toward the cognitive behavioral approaches to pain management. This theory helps to explain how interventions based on somato sensory (auditory, visual and tactile) stimulation such as friction; music therapy and distraction provide pain relief.

Melzack (1996)

BEHAVIORAL RESPONSE

“Although pain is a personal and subjective experience, the fact that someone is experiencing pain is often apparent to others. People who have pain may vocalize their distress by moaning, crying or complaining, or may exhibit pain-related body postures or facial expressions. These verbal and nonverbal behaviors have been called pain behaviors because they serve to communicate the fact that pain is being experienced

Fordyce,(1976).

PROBLEMS WITH THE PAIN BEHAVIORAL RESPONSE

Pain behaviors are a functionally equivalent “thing” that Communicates information The equi potentiality assumption—various “forms” of pain behaviour are equally susceptible to intra- and interpersonal influences “Insufficient attention is paid to the fact that the different pain behaviors measured are organized in different ways and at different levels in the nervous system. Thus, a treatment failing to affect a spinal reflex manifestation of pain may powerfully alter pain measured by vocalization.”

Fordyce,(1976).

FUNCTIONS OF PAIN-RELATED BEHAVIOR

Control of tissue damage

e.g., guarding, escape tendency.

Pain modulation

e.g., rubbing, touching

Communication and social regulation

e.g., facial expression, vocalization,

Language

e.g., Request for termination of procedure, negative speech.

Fordyce,(1976)

SECTION A: STUDIES RELATED TO PAIN AND BEHAVIOURAL PERCEPTION FOR CHILDREN DURING VENI PUNCTURE

Lim JY(1996) conducted a study of pain perception related to IV therapy in hospitalized preschool children. This descriptive study attempted to identify pain perception levels in preschool children and their mothers. A self-reporting measurement and behavioral observation were used to collect the data. A total of 25 hospitalized preschool children and their mothers were investigated and data were collected about 60 painful procedures. Data collection was carried out by the researcher and two trained investigators. Three instruments were used to collect the data : Faces Pain Rating Scale(FPRS) to measure the degree of preschool children's pain perception about painful procedures. The Visual Analogue Scale(VAS) devised to assess the degree of mothers' pain perception about their children's painful procedures. A Pain Behavioural Checklist based on the Procedure Behavior Check List was used to observe behaviours of preschool children, their mothers, and nurses when the painful procedures took place. The data were analyzed by an SPSS program, and were tested using real numbers, percentages, Pearson correlation coefficient, t-test, and ANOVA. The results of this study were of all the painful procedures, the mean score for the FPRS for the preschool children's pain perception was 4.02 points, and the mean score for the VAS of mothers' pain perception was 10.92 points. A positive correlation which was statistically significant was found between the pain perception of preschool children and their mothers($r=.53$, $p<.01$). that is, the higher the children's pain perception was, the higher their mothers' pain perception was.: The type of painful procedure was found to be statistically significant($F=23.44$, $p<.01$). Among the three procedures IV starting was found to be perceived as the most painful procedures to the children. The greater the number of times that the procedure had been done, the higher the pain perception was ($F=4.44$, $p<.01$), and the longer the duration of the procedure,

the higher the pain perception was ($r=.30$, $p<.05$). Pain perception in the treatment room was higher than in the children's room ($t=6.30$, $P<.01$), pain perception in the mother's presence was the higher than when the mother was not present ($t=2.91$, $p<.01$). The characteristics of the painful procedures related with the mothers' pain perception as follows: The type of painful procedure was found to be statistically significant ($F=6.01$, $p<.01$). Among the three procedures, IV sampling was found to be perceived as the most painful procedures to the mothers. The greater the number of times that the procedure had been done, the higher the pain perception was ($F=5.95$, $P<.01$), and the longer the duration of the procedure, the higher the pain perception was ($r=.31$, $p<.05$). Pain perception in the treatment room was higher than in the children's room ($t=3.51$, $p<.01$), but pain perception in the mother's presence showed statistically significant no difference. Of all of the 19 children's behaviours during the painful procedures, the most frequent behaviours observed were as follows in order of frequency "crying", "screaming", "facial grimacing", "physical resistance", Of all of the nine mothers' behaviours, the most frequent by observed in "console children", "hold children", "applaud children", Of all of the 11 nurses' behaviours during the painful procedures, the most behaviours during the painful procedures, the most frequent in order were "smiling", "physical restraint", "console children", "praise children". A positive correlation between children's and mothers' pain perception and children's behaviours was found to be statistically significant ($r=.65$, $p<.01$, $r=.67$, $p<.01$). Also the relationship between children's and mother's pain perception, and mothers' behaviour was found to be statistically significant ($r=.57$, $p<.01$, $r=.60$, $p<.01$). The relationship between children's pain perception and nurses' behaviours was also found to be statistically significant ($r=.46$, $p<.01$), but there was difference between mothers' pain perception and nurses' behaviours.

Janice Lander, et, al., (1999). Several aspects of venipuncture technique were evaluated to assess their relationship to reported pain. Subjects were 514

children aged 5–17 who had venipuncture performed by a technician in a hospital outpatient laboratory. A research assistant timed the duration of venipuncture and then obtained visual analogue pain scores from the children following venipuncture. Blood volume obtained from venipuncture was also measured. The technician who performed the procedure, amount of blood drawn, and time required to complete the venipuncture did not contribute to the prediction of children's pain. Age and anxiety, which were treated as covariates, were significant predictors of pain. The distribution of pain experienced by children was positively skewed and about one-third of children were above the mean pain score. From the results of this study, venipuncture pain can be recommended for the study of issues in children's pain.

SECTION B: STUDIES RELATED TO DIVERSION THERAPY FOR CHILDREN'S PAIN AND DISTRESS DURING VENIPUNCTURE PROCEDURE.

Laurie Barclay et al(2006) conducted a study on TV viewing has analgesic effects during venipuncture in children, In this study, 69 children aged 7 to 12 years undergoing venipuncture were randomized to receive no distraction procedure (controls), active distraction by their mother, or passive distraction by a television cartoon. After venipuncture, the mothers and children scored the intensity of pain during the procedure. Children's self-rated pain levels were 23.04 ± 24.57 in the control group, 17.39 ± 21.36 in the maternal distraction group, and 8.91 ± 8.65 in the television group. The corresponding pain levels rated by the mothers were 21.30 ± 19.9 , 23.04 ± 18.39 , and 12.17 ± 12.14 , Both the mothers' and children's rating scores suggested that procedures performed during television watching were perceived as being less painful than procedures performed during active or no distraction. TV watching was more effective than active

Mukesh Chandra Sharma(2007) conducted a study on effectiveness of two distraction technique in altering behavioural responses during immunization at Manglore. An experimental approach with quasi experimental design was used. The study was conducted at different immunisation clinics of Mangalore. The sample comprised of 60 children aged 1-3 years. The sample was selected using purposive sampling technique and randomly assigned to Group I(toy), Group II –music (rhymes) and Group III(control group). The result of the study showed that Group II had significant higher behavioural response score than that of group I ($t_{38}=2.4897$, $P<0.05$). ANOVA showed the significant difference among behavioural responses score of the three groups ($F(2, 57)=6.7086$, $P<0.01$). The findings of the study support the effectiveness of toy as a distracter compared to music. A toy can be used as a distracter in immunisation clinics to alter the behavioural responses while giving immunisation.

Dennis C et al(2000) conducted a study on effectiveness of distraction on children's pain and distress during medical procedures. A meta-analysis, The main Objectives of the study was To investigate the mean effect sizes across studies for the effects of distraction on young children's distress behaviour and self-reported pain during medical procedures. Hunter and Schmidt's (1990) procedures were used to analyse 16 studies (total $n = 491$) on children's distress behaviour and 10 studies (total $n = 535$) on children's pain. The research findings For distress behaviour, the mean effect size was $0.33 (\pm 0.17)$, with 74% of the variance accounted for by sampling and measurement error. For pain, the mean effect size was $0.62 (\pm 0.42)$ with 35% of the variance accounted for. Analysis of studies on pain that limited the sample to children 7 years of age or younger (total $n = 286$) increased the amount of explained variance to 60%. Distraction had a positive effect on children's distress behaviour across the populations represented in this study. The effect of distraction on children's self-reported pain was influenced by moderator variables. Controlling for age

and type of painful procedure significantly increased the amount of explained variance, but there are other unidentified moderators at work.

Gold JL,et.,al.,(2006),conducted a study on the effectiveness of virtual reality for paediatric pain distraction during IV placements. 20 children(12 boys and 8 girls) required iv placement for a magnetic resonance imaging/computed tomography scan were randomly assigned for 2 condition 1. Virtual reality (VR) distraction street luge (5DT), presented via a head mounted display, or 2. Standard care (topical anesthetics) with no distraction. Responses from the face pain scale revised indicates fourfold increase in effective pain within the control condition, o significant difference were detected within the VR condition. There was a significant amount of evidence supporting the efficacy of street luge as a paediatric pain distraction tool during IV placement an adequate level of presence, no simulator sickness and significantly more child parent and nurse reported satisfaction with pain management.

SPARKS, LAURIE (2001) Effectiveness of distraction to decrease pain, taking the ouch out of the injection the main purpose of the study was to compare the effects of two form of distraction on the injection pain in a convenient sampling of preschool children. the design used was quasi experimental design with a total number of population of about 105 children aged 4-6 years and pain was measured by the use of ouchers scale planned comparisons of analysis of variance ANOVA was used. the result tested that both the type of distraction touch, bubble blowing , significantly reduced pain perception distraction was effective.

YOO H,et.,all., (2009), Effects of animation distraction intervention on pain responses of preschool children during. The research employed non equiliant control group pre test post test quasi experimental design the experimental group n=20 was provided with an animation distraction intervention using a

laptop computer during the first venipuncture, and the control group n=20 received standard treatment .for distress behaviour the mean effect size was 0.33 (± 0.17), with 74% of the variance accounted for by sampling and measurement error. For pain the mean effect size was 0.62 (± 0.42) with 335% of the variance accounted, there were significant difference in self report pain response and behavioural pain response, blood cortisol, and blood glucose between the experimental group and the control group.

Bellieni CV,et.al.,(2006), conducted a study to assess the analgesic affect of watching TV during veni puncture.69 children aged 7-12 years were randomly divided into 3 groups a control group(c) without any distraction procedures, a group(m) in which mothers performed active distraction, and a TV group(TV) in which passive distraction a TV cartoon was used. Main pain level rated by the children were 23.04 (standard deviation (SD) 24.57, 17.39 ($SD \pm 21.36$) and 8.91($SD \pm 8.65$) for the c, m, TV groups. Main pain level rated by mothers were 21.30($SD \pm 19.9$), 23.04($SD \pm 18.39$), 12.17 ($SD \pm 12.14$) for the C, M, TV groups respectively. Score assigned by mothers and children indicated that procedures performed during TV watching was less painful ($p < 0.05$) than control or procedures performed during active distraction.

Hasanpour M,et.al.,(2006),conducted a study to evaluate the effects of local cold therapy and distraction in pain relief using penicillin intra muscular injection in children. 90 children with age from 5-12 who had penicillin injection intra muscularly in a health center were studied. The sample were divided into 3 groups. The first group received local cold therapy, the second group received distraction and the third group the control group received routine medical care. By using ouchter scale average pain intensity in local cold therapy, distraction and control group was 26.3,34.3, and83.3 respectively

Mac laren JE,et,al.,(2005), conducted a study to compare the effects of two pediatric veni puncture distress-management distraction strategies. 88 1-7 year old children receiving veni puncture were randomly assigned to one of the three treatment conditions, interactive distraction, passive movie distraction and standard care. Distress was examined via parent, nurse, self report(children over 4 year) and observational coding. Children in the passive movie distraction were less distressed than children in the interactive conditions. And also children in the interactive condition were more distracted than standard care children.

Bermeier AW,et,al.,(2007), conducted a study to evaluate the effects of self selected distraction (bubbles, i spy, super challenge book, music table, virtual reality glasses or hand held video games)on pain feat and distress in 50 children and adolescence with cancer age 5-16 years with veni puncture , participants were randomised to comparison group (n=22) to receive distraction plus standard care, self reported pain and fear were significantly correlated ($p=0.1$) within treatment group but not significantly diferant between groups. Intervention participants demonstrated significantly less fear ($p<0.001$) and distress ($p=0.03$) as rated by the nurse and approached significantly less fear ($p=0.07$) as rated by the parent.

Heppler.C.Wagon RD(2000),,conducted a study to determine the effectiveness of parental positioning and distraction on the pain, fear, and distress of pediatric patients undergoing venipuncture. An experimental-comparison group design was used to evaluate 43 patients (20 experimental and 23 comparison) who were 4 to 11 years old. Experimental participants used parental positioning and distraction. All participants rated their pain and fear; parents and child life specialists (CLS) rated the child's fear, and CLS rated the child's distress. Self-reported pain and fear were highly correlated ($p < .001$) but not significantly different between the two groups. Fear rated by CLS ($p <$

.001) and parents ($p = .003$) was significantly lower in experimental participants. Although no differences were found in distress between the two groups, a significant time trend was discovered ($p < .001$). The parental positioning-distraction intervention has the potential to enhance positive clinical outcomes with a primary benefit of decreased fear.

CHAPTER III

METHODOLOGY

RESEARCH METHODOLOGY

This chapter deals with the methodology adopted for the study. It includes research approach, design of the study, setting, and criteria for the sample selection, sampling technique, sample size, instruments, and method of data collection and plan for analysis of data

RESEARCH APPROACH

The evaluative approach was used to evaluate the effectiveness of computer assisted diversional therapy among preschool children during venipuncture procedure in OPD of Masonic hospital

RESEARCH DESIGN

The research design used in this study was quasi experimental non-equivalent control group post test only design.

Group I	INTERVENTION	POST TEST
experimental	X	O ₁
GroupII Control group	-	O ₂

X =computer assisted diversion therapy.

O₁=Wong Bake Face pain scale for pain and Observed Child pain scale for Behavioural responses in experimental group.

O₂= Wong Bake Face pain scale for pain and Observed Child pain scale for Behavioural responses in control group.

SETTING OF THE STUDY

The study was conducted in Masonic medical center for children Coimbatore. The regular outpatient census is about 60-70 children per day. A monthly census of 1500-1700 children visit the hospital OP department every month among which 5-7 intra venous injections and 15- 20 blood samples are collected every day in the injection room and laboratory of the hospital.

POPULATION

The population for the study was children attending OPD of Masonic hospital, Coimbatore.

SAMPLE

Preschool children between the age group of 3-6 years undergoing venipuncture procedure were selected.

CRITERIA FOR SAMPLE SELECTION

INCLUSION CRITERIA

Parents who are willing to allow their children to participate in the study

Parents and children who can understand Tamil or English

EXCLUSION CRITERIA

Children brought for emergency critical care

Handicapped children

Mentally challenged children

SAMPLE SIZE

Sample size consists of 200 samples of preschool children undergoing selected venipuncture procedure attending OPD in Masonic hospital, Coimbatore, in which 100 samples were selected for experimental group and 100 samples were selected for control group.

SAMPLING TECHNIQUE

Purposive sampling was used to select the sample. First 100 preschool children attending OPD for veni puncture was selected for experimental group and the following 100 preschool children attending OPD for veni puncture was selected for control group.

INSTRUMENT

A. Description of the instrument

The instrument consists of three parts.

Part I

It consists of demographic variables such as age, sex, area of residence, type of family, birth order of the child, religion, education status of the parents, monthly income of the family, previous hospitalization of the child.

Part II

It consists of Wong Bakers Face Pain Rating Scale to assess the pain during venipuncture procedure, which consists of 6 points face scale with score of 10 checked in 3 phases with a total score of 30.

Part III

It consists of Observed child distress scale was used to measure six behavioural responses to veni puncture: pain verbalization, cry/spells, request for termination of procedure, refusing to assume body position, muscular rigidity, and requiring physical restrain. They are rated for the presence (1) or absence(0), for a total score ranging from 0-18.

SCORING PROCEDURE

Part II

Wong Bakers face pain rating scale which consists of 6 points and score is 10 and is carried out in three phases total score 30 is interpreted as follows

Level of pain	Score	Percentage
Mild pain	0-10	0-33
Moderate pain	11-20	34-67
Severe pain	21-30	68-100

Part III

Observed child distress scale is used to measure six behavioural responses to veni puncture: pain verbalization, cry/spells, request for termination of procedure, refusing to assume body position, muscular rigidity, and requiring physical restrain, carried out in 3 phase total score ranging from 0-18 is interpreted as follows.

Level of behavioural responses	Score	Percentage
Mild-behavioural response	0-6	0-33
Moderate behavioural responses	7-12	34-67
Severe behavioural responses	13-18	68-100

VALIDITY AND RELIABILITY

The validity of the tool was established in consultation with guide and four experts in the field of paediatric nursing, one paediatrician. The tool has been modified according to the suggestion and recommendations of the experts.

RELIABILITY

Reliability of Wong bakers face pain scale tested by inter rater method by using Karl Pearson co-efficient formula and it was found to be reliable ($r=0.9$). the reliability of OCDS was tested by inter rater method by using Karl Pearson co-efficient formula and it was found reliable($r=0.9$).

PILOT STUDY

The pilot study was conducted in Masonic hospital at Coimbatore for a period of one week during the month of June. Oral permission has been obtained from the medical director, Masonic hospital, and from the parents prior to the study. Children fulfilling the inclusion criteria were chosen by using purposive sampling. The sample size for the pilot study was 20, 10 samples in experimental group and 10 samples in control group. During the veni puncture the computer assisted video game and animations was given to the children for 5 minutes before, during the procedure for 5 minutes and after the venipuncture for 5 minutes for a total duration of 15 minutes. during the veni punctur procedure pain and behavioural responses was assessed using the Wong Bakers FACE pain rating scale and OCDS scale was used in the experimental group, and in control group with only standard hospital routine pain was assessed by using Wong Baker's face rating scale and behavioural responses are assessed by using ,OCDS scale during the veni puncture procedure. Data was analysed the t value was 3.463 and was found to be significant at $P<0.05$ level of significance for pain and t value was 5.737 was found to be significant at $P<0.05$ level of significance

DATA COLLECTION

The study was conducted in Masonic hospital Coimbatore prior permission has been obtained from the managing director of Masonic hospital. The purpose of this study is to assess the effectiveness of computer-assisted diversion during selected veni puncture procedures among preschool children

attending OPD. About 6-7 preschool children were selected per day and the purpose was clearly explained to the parents of the children oral consent was obtained. The researcher selected 200 samples by purposive sampling methods in which 100 samples were experimental group and 100 samples were control group. In the experimental group the researcher collected the demographic variable from parents and provided computer assisted diversional therapy for a total duration of 15 minutes before the procedure, during the procedure and after the procedure. The selection of games, rhymes was according to the child's preference. The pain was assessed using Wong Baker's Face pain scale and behavioural responses was assessed by using Observed child distress scale the assessment was carried out in 3 phases in which, phase 1: From sitting in chair to tourniquet application, phase 2: From tourniquet application until needle insertion. Phase 3: From skin pricking to bandage application. in the control group the demographic variables were collected and standard hospital care was provided to the children undergoing venipuncture procedures , during which pain was assessed using Wong Baker's Face pain scale and behavioural responses was assessed by using Observed Child Distress Scale in 3 phases. The data gathered were analysed employing descriptive and inferential statistics. There was a significant difference between pre and post test pain score ('t' value = 5.5) $P < 0.05$. the mean score of pain in experimental group was 14.47(sd+4.72) in control group the mean score was 18.82(sd+5.13) and behavioural response ('t' value = 5.25) $P < 0.05$ the mean score of behavioural responses in experimental group was 4.28(sd+1.67) and control group 5.69(SD+2.09) The result showed that computer assisted diversion therapy reduced pain and improved behavioural response among preschool children attending out patient department for venipuncture procedure.

PLAN FOR DATA ANALYSIS:

Collected data will be tabulated and analysed by using descriptive and inferential statistical method.

S. NO	DATA ANALYSIS	METHODS	OBJECTIVES OR REMARKS
1.	Descriptive statistics	Frequency and percentage distribution, mean, standard deviation.	To assess the demographic variable. To assess the pain and behavioural responses during the veni puncture procedure in experimental group To assess the pain and behavioural responses during the veni puncture procedure in control group.
2.	Inferential statistics	Unpaired t' test	To compare the post test score of pain during veni puncture procedure among preschool children in experimental group and control group. To compare the post test score of behavioural response during veni puncture procedure among preschool children in experimental group and control group.
		Chi square test	To find the association between pain during veni puncture procedures among preschool children with their selected demographic variables in experimental group To find the association between behavioural responses during veni puncture procedures among preschool children with their selected demographic variables in control group.

PROTECTION OF HUMAN SUBJECT:

The research proposal was approved by the dissertation committee. The written permission was obtained from the medical officer of the research setting and oral consent was obtained for each parent of the participant by explaining the purpose of the study before collecting the data. Confidentiality and privacy was maintained throughout the study.

CHAPTER - IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the description of sample characteristics, analysis and interpretation of the data collected from preschool children attending OPD in Masonic hospital, Coimbatore.

The present study was designed to assess the effectiveness of video aided diversional therapy on pain and behavioural responses during veni puncture procedure among preschool children attending OPD in Masonic hospital. The collected data were calculated, analysis using descriptive and inferential statistics and interpreted as per the objectives of the study, under the following headings:

ORGANIZATION OF THE DATA:-

- | | | | |
|----------------|---|----------|---|
| Section | – | A | Distribution of demographic variables of preschool children undergoing veni puncture procedure in experimental group and control group |
| Section | - | B | Assess the post test score of pain and behavioural responses during veni puncture procedures among preschool children in experimental group |
| Section | - | C | Assess the post test score of pain and behavioural responses during veni puncture procedures among preschool children in control group. |

- | | | | |
|----------------|---|----------|---|
| Section | - | D | Compare the posttest score of pain during veni puncture procedures among preschool children between experimental group and control group. |
| Section | - | E | Compare the posttest score of behavioural response during veni puncture procedures among preschool |
| Section | - | F | children between experimental group and control group.
Association between pain during veni puncture procedures among preschool children with their selected |
| | - | | demographic variables in experimental group. |
| Section | | G | Association between behavioural responses during veni puncture procedures among preschool children with their selected demographic variables in experimental group. |

SECTION-A: DISTRIBUTION OF DEMOGRAPHIC VARIABLE OF PRESCHOOL CHILDREN UNDERGOING VENIPUNCTURE PROCEDURE IN EXPERIMENTAL GROUP AND CONTROL GROUP

TABLE 1: Frequency and percentage of demographic variable of preschool children undergoing veni puncture procedures in experimental group

$n^1=100, n^2=100$

S. NO	DEMOGRAPHIC VARIABLE	Experimental group		Control group	
		FREQUENCY (f)	PERCENTAGE %	FREQUENCY (f)	PERCENTAGE %
	AGE				
	3 -4 years	25	25	35	35
	4-5 years	41	41	34	34
	5-6 years	34	34	31	31
	Sex of the child				
	Male	58	58	47	47
	Female	42	42	53	53
3.	Area of residence				
	Urban	81	81	80	80
	Rural	19	19	20	20
4.	Type of family				
	Nuclear family	76	76	77	77
	Joint family	24	24	23	23
6.	Birth order of the child				
	First child	44	44	52	52
	Second child	50	50	41	41
	Third child	6	6	7	7

7.	Religion				
	Hindu	65	65	66	66
	Christian	19	19	20	20
	Muslim	16	16	14	14
8.	Educational status of mother				
	No formal education	1	1	0	0
	Primary education	3	3	6	6
	Higher secondary education	22	22	20	20
	Graduate	74	74	74	74
9.	Family monthly income				
	Rs.3000-Rs.5000/-	0	0	0	0
	Rs.5001-Rs6000/-	1	1	4	4
	Rs6001-Rs.8000/-	15	15	12	12
	Rs.8001-Rs10000/-	84	84	84	84
10.	Previous hospitalization				
	Yes	96	96	88	88
	No	4	4	12	12

Table 1 describes the demographic variables such as age, sex of the child, area of residence, type of family, birth order of the child, Religion, education status of mother, Family monthly income and previous hospitalization in experimental group and control group.

With regard to the age group 3-4 years were 25 (25%), 4-5 years were 41 (41%) and 34 (34 %) were 5-6 years in experimental group. With regard to the

age in control group 3-4 years were 35 (35%) ,4-5 years were 34 (34%) and 31 (31 %) were 5-6 years (fig-2)

According to the sex of the child, 58(58%) of the children were males and females were 42(42 %) in experimental group. According to the sex of the child in control group, 47(47%) of the children were males and females were 53(53 %). (fig-3)

With regard to the area of residence 81(81%) of the children living in the urban area and (19%) of the children lives in the rural area in experimental group. With regard to the area of residence in control group 80 (80%) of the children living in the urban area and 20 (20%) of the children lives in the rural area. (fig-4)

With regard to the type of family 76(76%) of the preschool children belong to nuclear family and 24(24%) of the children belong to joint family in experimental group. With regard to the type of family in control group 77(77%) of the preschool children belong to nuclear family and (23%) of the children belong to joint family. (fig-5)

With regard to the birth order of the child 44(44%) of the children are first born, 50(50%) of the children are second born, 6(6%) of the children are third born in the family of experimental group. With regard to the birth order of the child in control group 54(52%) of the children are first born, 41(41%) of the children are second born, 7(7%) of the children are third born in the family. (fig-6)

With regard to the religion 65(65%) children are Hindu, 19(19%) are Christians and 16(16%) are Muslims in experimental group. With regard to the religion in control group 66(66%) children are Hindu, 20(20%) are Christians and 14(14%) are Muslims. (fig-7)

With regard to the educational status of the mothers 3(3%) belongs to mothers with primary education, 22 (22%) belongs to mothers with higher secondary education, 74(74%) belongs to mothers with graduation and 1 (1%) child belongs to mothers with no formal education in experimental group. With regard to the educational status of the mother in control group 0(0%) belongs to parents with primary education, 6(6%) belongs to mothers with higher secondary education, 20(20%) belongs to mothers with graduation and 74(74%) child belongs to mothers with no formal education. (fig-8)

With regard to family monthly income 0(0%) children belongs to family with the income of Rs.3000-5000/-, 1(1%) child belongs to the family belonging to the income group of Rs.5001-6000/-, 15(15%) children belong to the family with the income group of Rs6001-8000/-, and 84(84%) children belong to family with the income group of Rs8001-10,000/- in experimental group. With regard to family monthly income in control group 0(0%) children belongs to family with the income of Rs.3000-5000/-, 4(4%) child belongs to the family belonging to the income group of Rs.5001-6000/-, 12(12%) children belong to the family with the income group of Rs6001-8000/-, and 84(84%) children belong to family with the income group of Rs8001-10,000/- . (fig-9)

With regard to previous hospital experience 96(96%) children had previous hospital experience and 4(4%) children had no previous experience in experimental group. With regard to previous hospital experience in control group 88(88%) children had previous hospital experience and 12(12%) children had no previous experience. (fig-10)

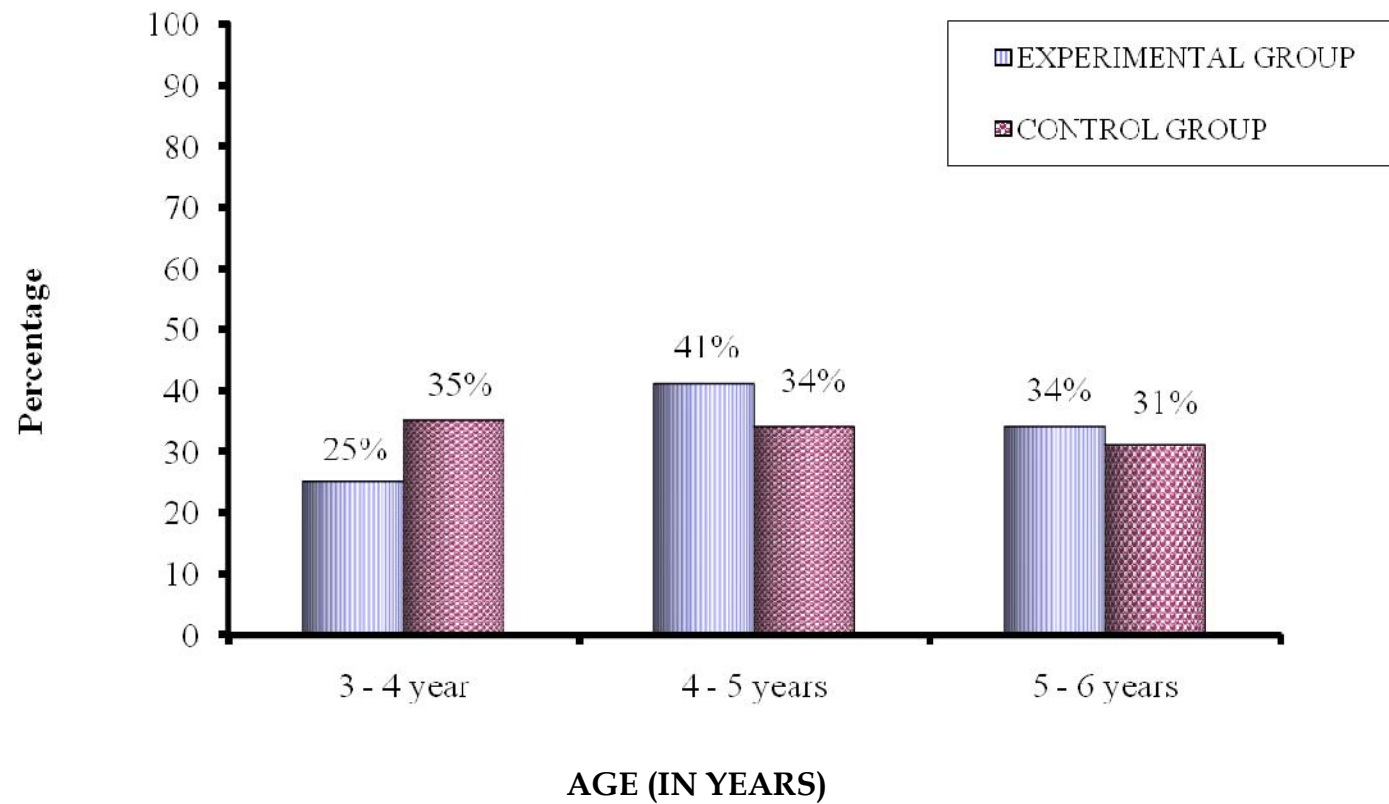


FIG: 2 FREQUENCY DISTRIBUTION OF AGE OF THE CHILD IN EXPERIMENTAL AND CONTROL GROUP

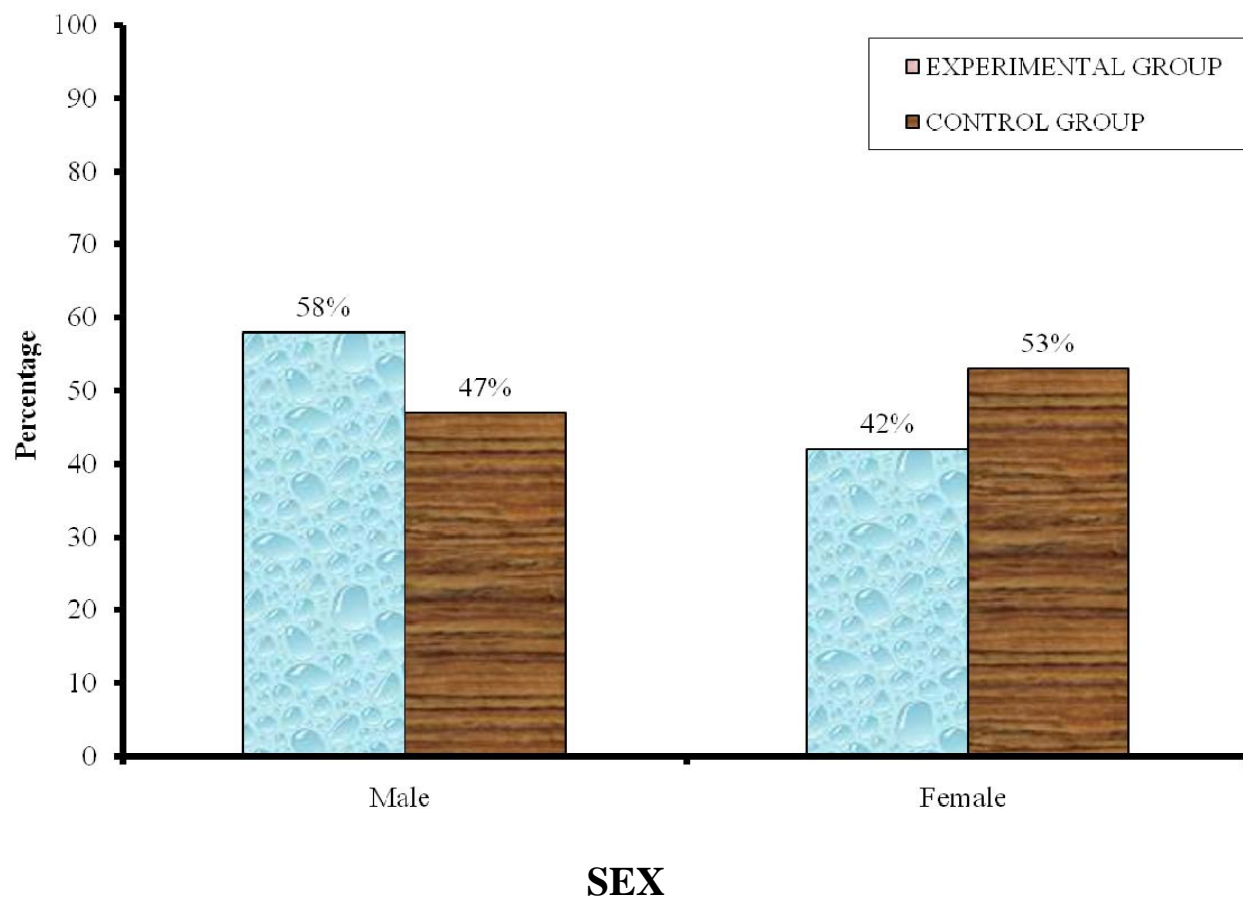


FIG: 3 FREQUENCY DISTRIBUTION OF SEX OF THE CHILD IN THE EXPERIMENTAL AND CONTROL GROUP

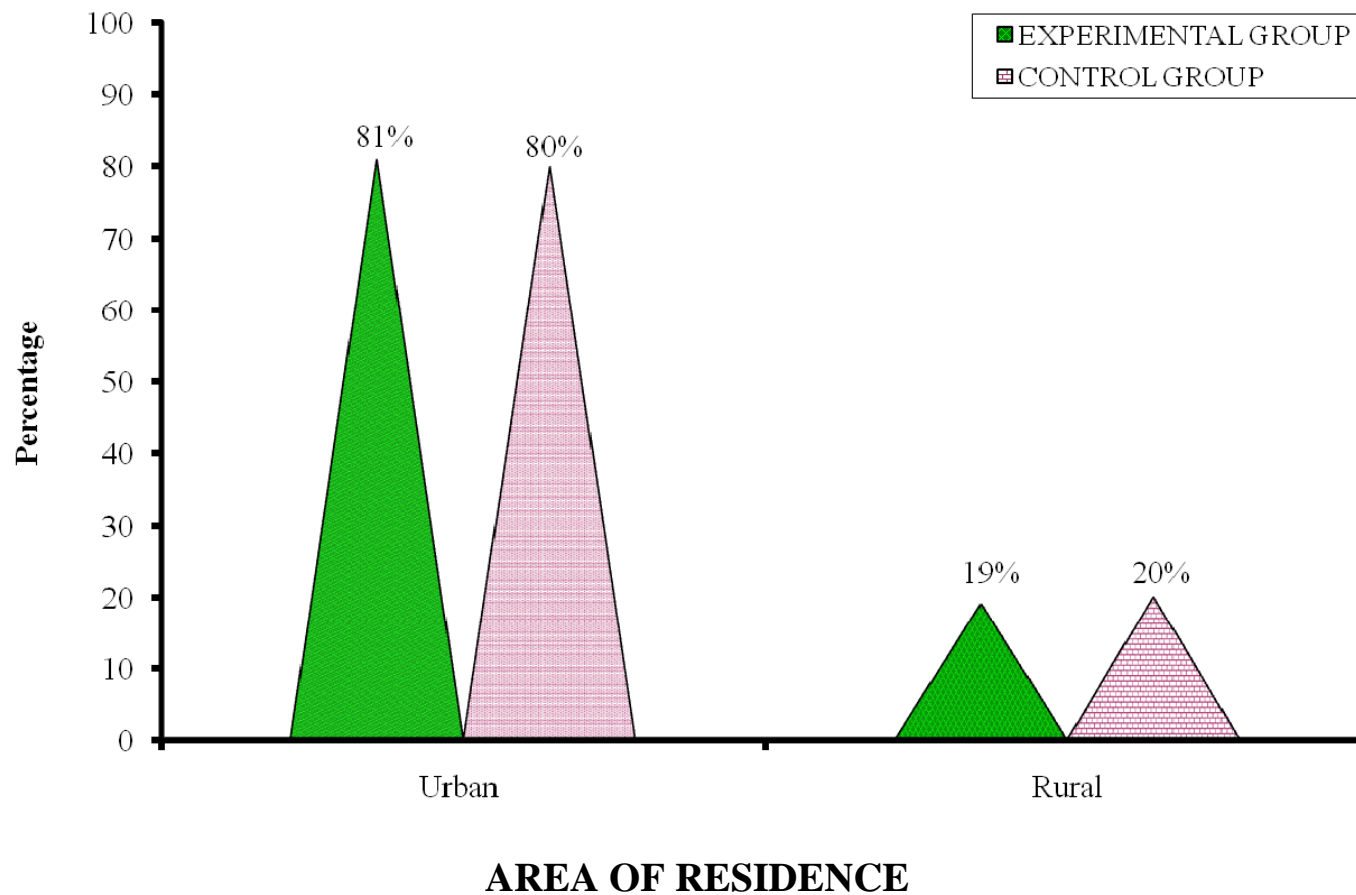
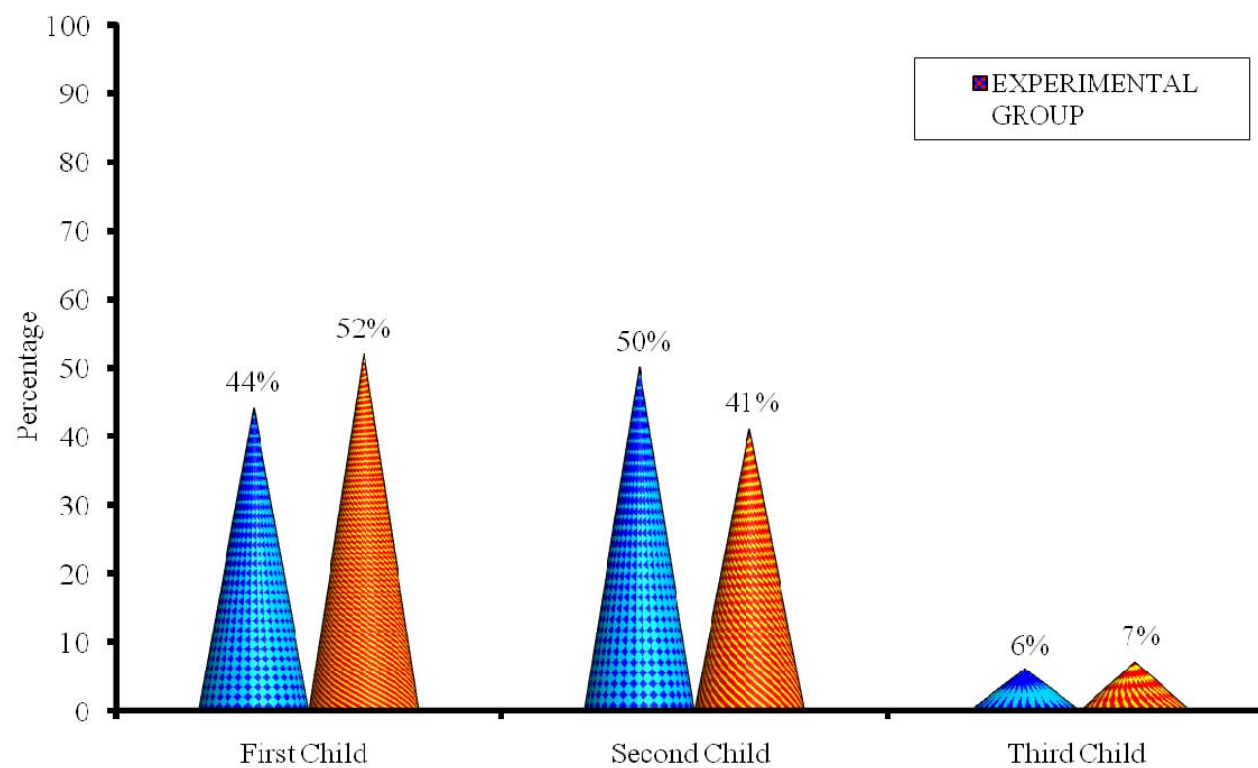


FIG : 4 FREQUENCY DISTRIBUTION OF AREA OF RESIDENCE IN EXPERIMENTAL AND CONTROL GROUP



BIRTH ORDER OF THE CHILD

FIG : 5 FREQUENCY DISTRIBUTION OF BIRTH ORDER OF THE CHILD IN EXPERIMENTAL AND CONTROL GROUP

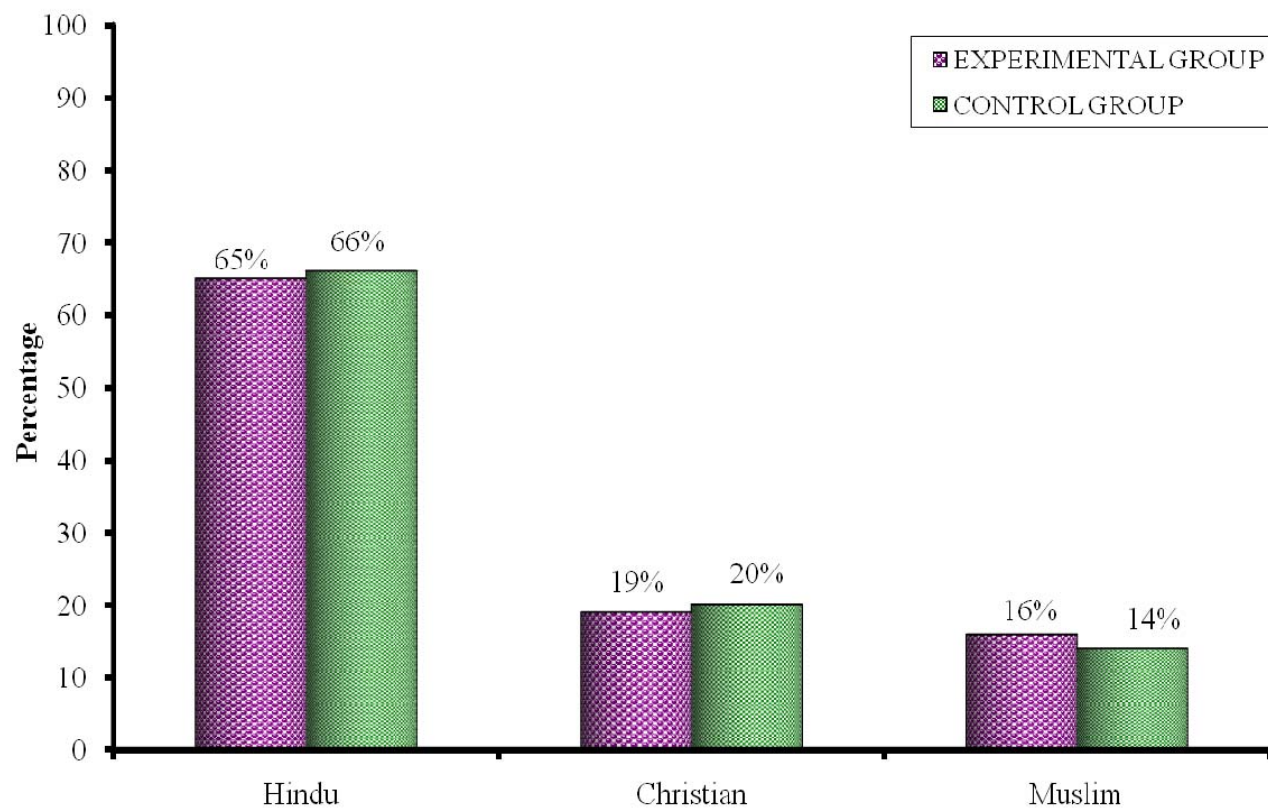
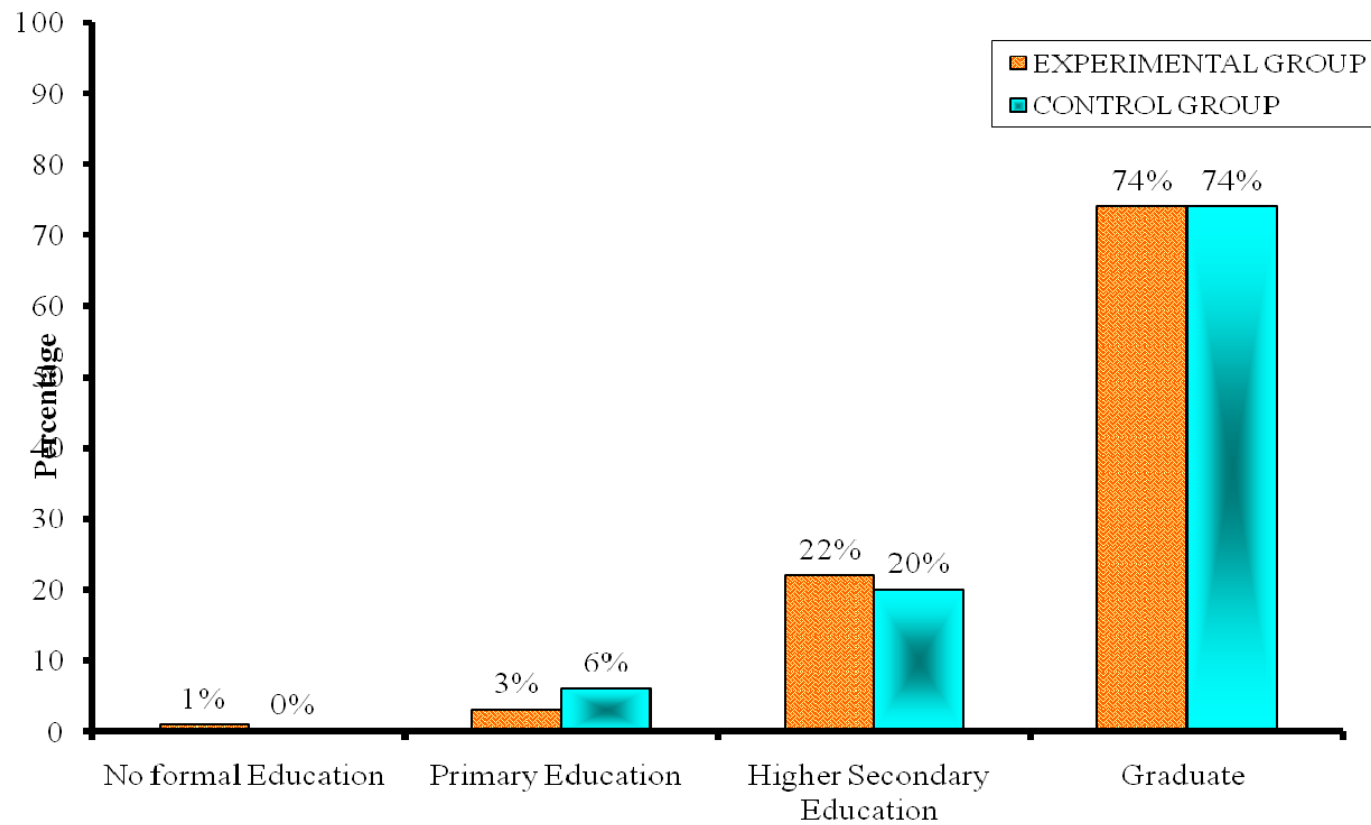


FIG : 6 **FREQUENCY DISTRIBUTION OF RELIGION OF THE CHILD IN EXPERIMENTAL AND CONTROL GROUP**



EDUCATIONAL STATUS OF THE MOTHER'S

FIG : 7 FREQUENCY DISTRIBUTION OF MOTHER'S EDUCATIONAL STATUS IN EXPERIMENTAL GROUP AND CONTROL GROUP

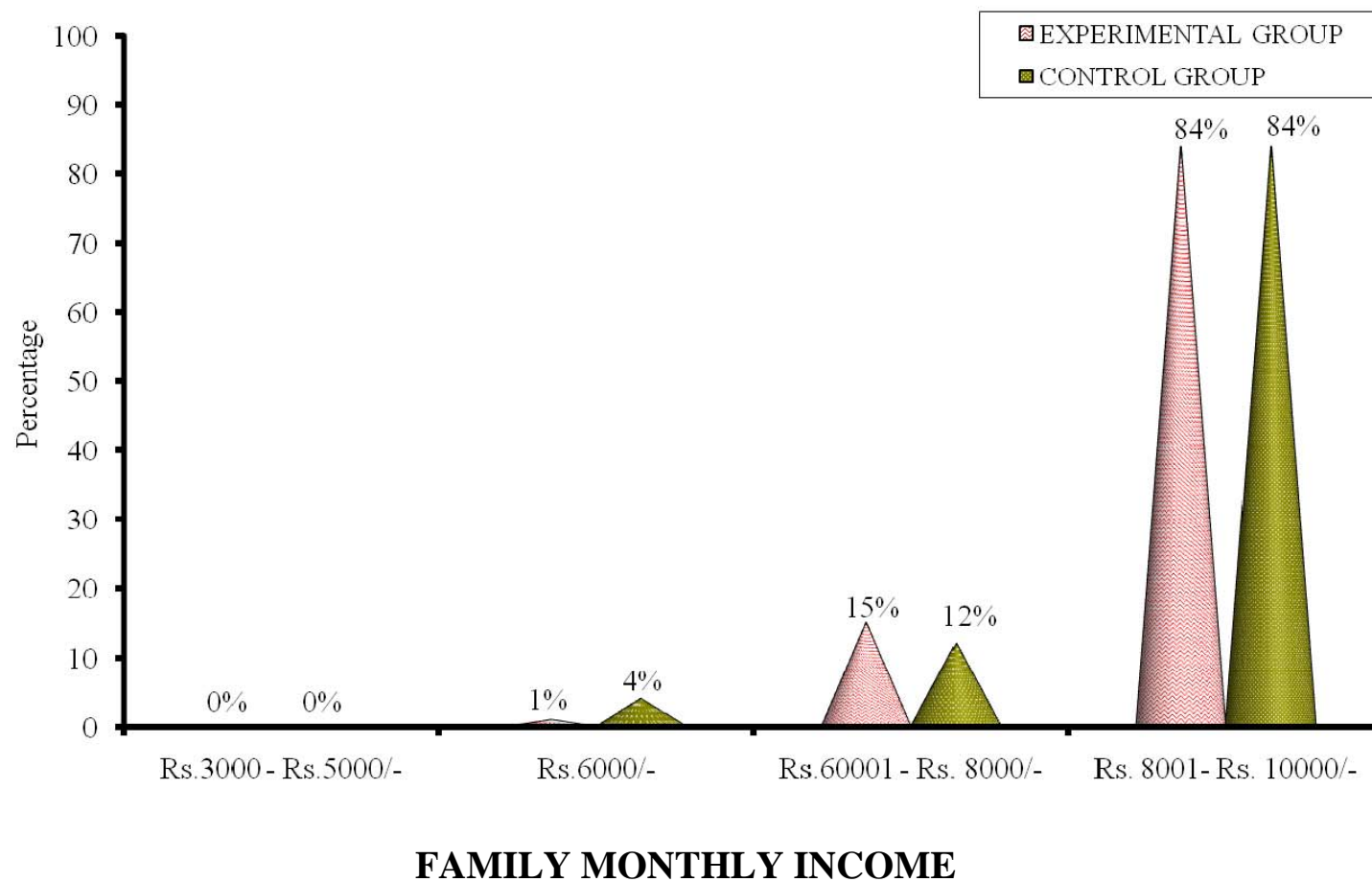
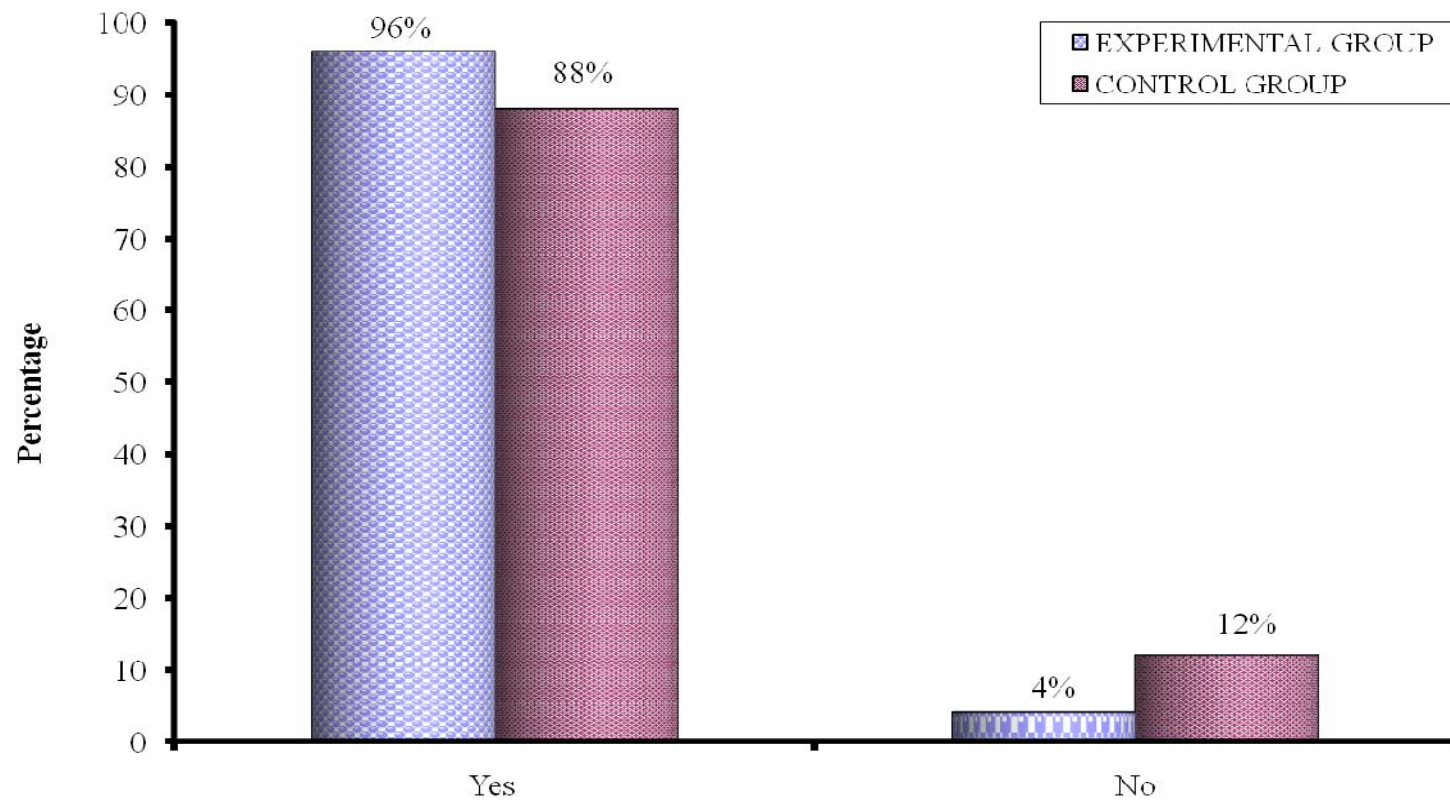


FIG : 8 **FREQUENCY DISTRIBUTION OF FAMILY MONTHLY INCOME IN EXPERIMENTAL AND CONTROL GROUP**



PREVIOUS HOSPITALIZATION

FIG : 9 **FREQUENCY DISTRIBUTION OF PREVIOUS HOSPITALIZATION IN EXPERIMENTAL AND CONTROL GROUP**

SECTION B: ASSESS THE POST TEST SCORE OF PAIN AND BEHAVIOURAL RESPONSES DURING VENI PUNCTURE PROCEDURES AMONG PRESCHOOL CHILDREN IN EXPERIMENTAL GROUP.

Table 3: Frequency and percentage of post test score of pain and behavioural responses in experimental group

n=100

CATAGORY	Pain		Behavioural response	
	F	%	F	%
MILD	9	9	91	91
MODERATE	73	73	9	9
SEVERE	18	18	0	0

Table 2, showed that in post test among 100 preschool children, in that 9(9%)of the children had mild pain, 73(73%) of the children had moderate pain and 18(18%) of the children had severe pain during veni puncture and 91(91%) of the children had mild behavioural response, 9(9%) of the children had moderate behavioural response and 0(0%) of the children had severe behavioural response during veni puncture procedure. (fig-11)

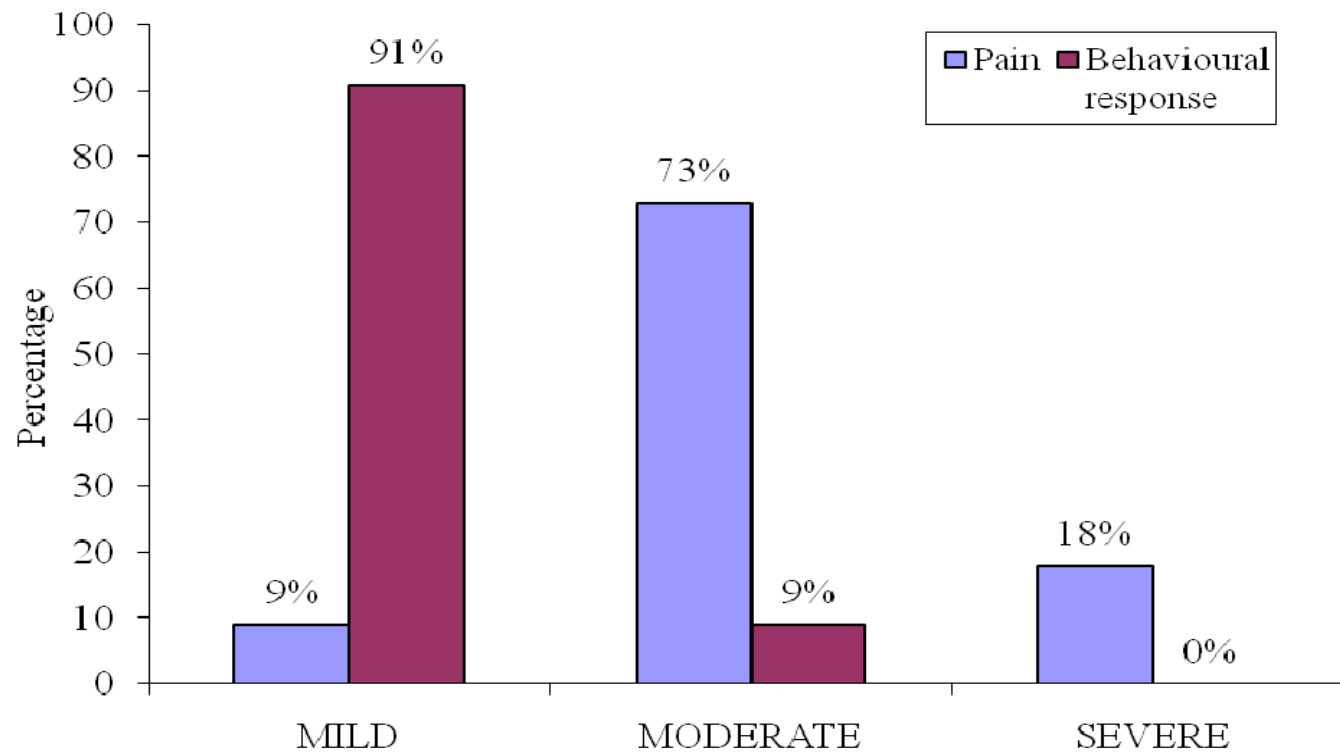


Fig : 10 Frequency distribution of pain and behavioural responses in experimental group

SECTION C: ASSESS THE POST TEST SCORE OF PAIN AND BEHAVIOURAL RESPONSES DURING VENI PUNCTURE PROCEDURES AMONG PRESCHOOL CHILDREN IN CONTROL GROUP GROUP.

Table 4: Frequency of pain and behavioural response score of preschool children in control group

n=100

Category	Pain		Behavioural response	
	F	%	F	%
Mild	2	2	67	67
Moderate	55	55	33	33
Severe	43	43	0	0

Table 3 showed that in post test among 100 preschool children, in that 2(2%) of the children had mild pain, 55(55%) of the children had moderate pain and 43(43%) of the children had severe pain during veni puncture procedure and 67(67%) of the children had mild behavioural response, 33(33%) of the children had moderate behavioural response and 0(0%) of the children had severe behavioural response during veni puncture procedure. (fig-12)

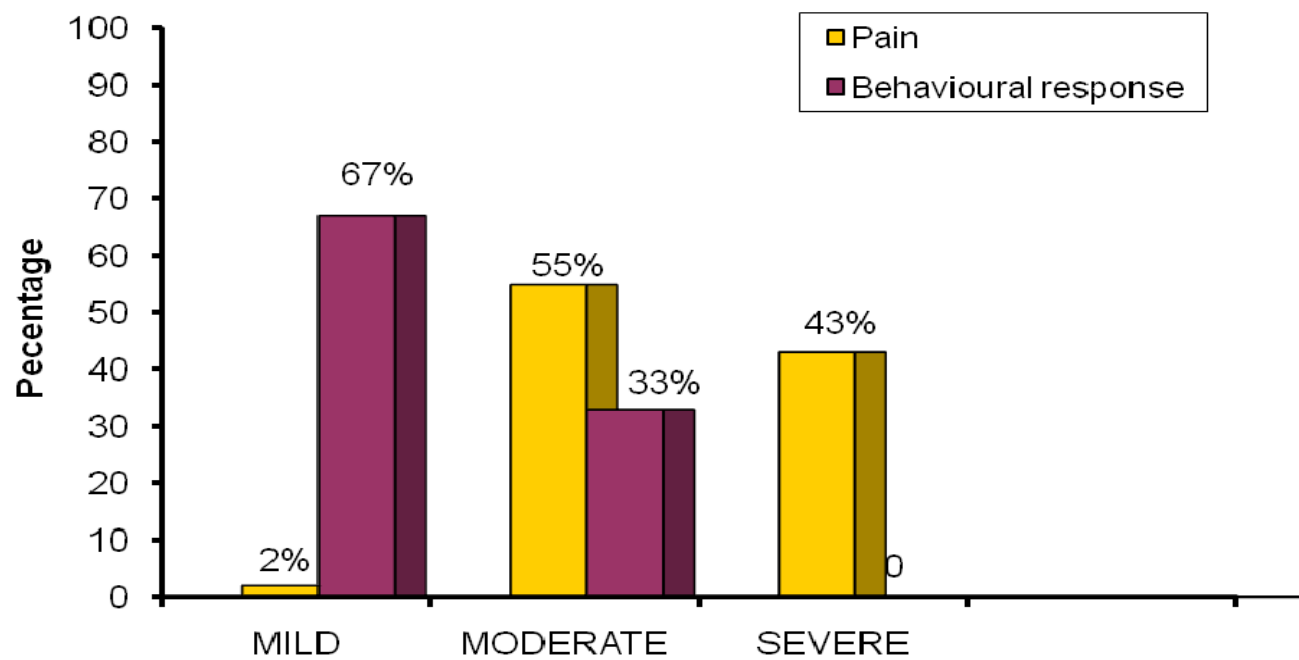


Fig : 10 Frequency distribution of pain and behavioural responses in Control group

SECTION D: COMPARE THE POST TEST SCORE OF PAIN DURING VENI PUNCTURE PROCEDURES AMONG PRESCHOOL CHILDREN BETWEEN EXPERIMENTAL GROUP AND CONTROL GROUP.

Table 5: comparison of mean, standard deviation and independent 't' value of pain between experimental and control group

$n^1=100, n^2=100$

Group	pain		Mean difference	Independent "t" value	Table value	Inference
	mean	SD				
Experimental group	14.78	4.72	4.04	5.5	1.97	S*
Control group	18.82	5.13				

df=199

P<0.05

S* = significant

Table 5 :showed that the level of pain scores regarding pain during venipuncture procedures among preschool children was 14.78(SD=4.72) in experimental group and 18.82(SD=5.13) in control group respectively. The mean difference was 4.04the experimental group mean level of pain score is lower than the control group. The independent 't' value was 5.5. This was significant at 0.05 levels.

SECTION E: COMPARE THE POST TEST SCORE OF BEHAVIOURAL RESPONSE DURING VENI PUNCTURE PROCEDURES AMONG PRESCHOOL CHILDREN BETWEEN EXPERIMENTAL GROUP AND CONTROL GROUP.

Table 6: comparison of mean, standard deviation and independent 't' value of behavioural responses between experimental and control group

$n^1=100$, $n^2=100$

group	Behavioural responses		Mean difference	Independent "t" test	Table value	Inference
	mean	SD				
Experimental group	4.28	1.67	1.41	5.25	1.97	S *
control group	5.69	2.09				

df=199

$P < 0.05$

S * = significant

Table 6 :showed that the level of behavioural response scores regarding behavioural responses among preschool children was 4.28(SD=1.67) in experimental group and 5.69(SD=2.09) in control group respectively. The mean difference was 1.41. the experimental group mean level of behavioural response score is lower than the control group. The independent 't' value was 5.25. Which was significant at 0.05 level.

SECTION F: ASSOCIATION BETWEEN PAIN DURING VENI PUNCTURE PROCEDURES AMONG PRESCHOOL CHILDREN WITH THEIR SELECTED DEMOGRAPHIC VARIABLES IN EXPERIMENTAL GROUP .

Table 7: Association of posttest pain score with their demographic variables among preschool children in experimental group.

n=100

S. NO	DEMOGRAPHIC VARIABLE	Mild pain		Moderate pain		Sever-e pain		Chi square value	Table value	Inference
		F	%	F	%	F	%			
	AGE									S
	3 -4 years	4	4	16	16	5	5	29.29	9.47 (df=4)	
	4-5 years	4	4	30	30	7	7			
	5-6 years	1	1	27	27	6	6			
	Sex of the child									NS
	Male	7	7	39	39	12	12	2.682	5.99 (df=2)	
	Female	2	2	34	34	6	6			
	Area of residence									NS
	Urban	7	7	62	62	12	12	3.191	5.99 (df=2)	
	Rural	2	2	11	11	6	6			
	Type of family									NS
	Nuclear family	7	7	56	56	13	13	0.168	5.99 (df=2)	
	Joint family	2	2	17	17	5	5			
	Birth order of the child									NS
	First child	4	4	32	32	8	8	0.147	9.49 (df=4)	
	Second child	5	5	36	36	9	9			
	Third child	0	0	5	5	1	1			

	Religion									
	Hindu	2	2	47	47	16	16	11.8	9.49 (df=4)	S
	Christian	4	4	14	14	1	1			
	Muslim	3	3	12	12	1	1			
	Educational status of parents							10.3	16.92 (df=6)	NS
	No formal education	0	0	0	0	1	1			
	Primary education	1	1	1	1	1	1			
	Higher secondary education	4	4	15	15	3	3			
	Graduate	4	4	57	57	13	13			
	Family monthly income							15.9	16.92 (df=6)	NS
	Rs.3000-									
	Rs.5000/-	0	0	0	0	0	0			
	Rs.5001-									
	Rs6000/-	0	0	1	1	0	0			
	Rs6001-	2	2	10	10	3	3			
	Rs.8000/-									
	Rs.8001-	7	7	62	62	15	15			
	Rs10000/-									
	Previous hospitalization							0.419	5.99 (df=2)	NS
	Yes	9	9	69	69	18	18			
	No	0	0	4	4	0	0			

P<0.05

S:significant, NS: not significant

Table 7: showed that there was a significant association with pain score when compared to age of the child (chi square value $X^2 = 29.29, p < 0.05$), religion (chi square value $X^2 = 11.8, p < 0.05$). There is no association with residential area, sex of the child, type of family, birth order of the child, education status of the mother, monthly income of the family and previous hospitalization of the child

SECTION G: ASSOCIATION BETWEEN BEHAVIOUR AMONG PRESCHOOL CHILDREN DURING VENI PUNCTURE PROCEDURES WITH THEIR SELECTED DEMOGRAPHIC VARIABLES IN EXPERIMENTAL GROUP.

Table 8: Association of behavioural responses with their demographic variables among preschool children in experimental group

n=100

S. NO	DEMOGRAPHIC VARIABLE	Mild pain		Moderate pain		Severe pain		Chi square value	Table value	Inference
		F	%	F	%	F	%			
	AGE									NS
	3 -4 year	21	21	4	4	0	0	3.886	9.49 (df=4)	
	4-5 years	40	40	1	1	0	0			
	5-6 years	30	30	4	4	0	0			
	Sex of the child							0.744	5.99 (df=2)	NS
	Male	54	54	4	4	0	0			
	Female	37	37	5	5	0	0			
	Area of residence							0.581	5.99 (df=2)	NS
	Urban	72	72	9	9	0	0			
	Rural	19	19	0	0	0	0			
	Type of family							0.494	5.99 (df=2)	NS
	Nuclear family	70	70	6	6	0	0			
	Joint family	21	21	3	3	0	0			
	Birth order of the child							0.131	9.49 (df=4)	NS
	First child	41	41	4	4	0	0			
	Second child	44	44	5	5	0	0			
	Third child	6	6	0	0	0	0			

	Religion									
	Hindu	57	57	8	8	0	0			
	Christian	18	18	1	1	0	0	4.47	9.49	NS
	Muslim	91	91	0	0	0	0		(df=4)	
	Educational status of parents									
	Primary education	3	3	0	0	0	0			
	Higher secondary education	20	20	2	2	0	0	326.33	12.59 (df=6)	S
	Graduate	67	67	7	7	0	0			
	No formal education	1	1	0	0	0	0			
	Family monthly income									
	Rs.3000-	0	0	0	0	0	0	1.274	12.59 (df=6)	NS
	Rs.5000/-	1	1	0	0	0	0			
	Rs.5000-									
	Rs6000/-									
	Rs6000-	13	13	2	2	0	0			
	Rs.8000/-									
	Rs.8000-	77	77	7	7	0	0			
	Rs10000/-									
	Previous hospitalization							1.26	5.99 (df=2)	NS
	Yes	88	88	8	8	0	0			
	No	3	3	1	1	0	0			

P<0.05

S:significant,

NS: not significant

Table 8: showed that there was a significant association with behavioural responses score when compared to education status of the parents (chi square value $X^2 = 328.33$, $p < 0.5$). There is no association with age of the child, sex of the child, type of family, birth order of the child, area of residence, religion, education status of the mother, monthly income of the family and previous hospitalization

CHAPTER V

DISCUSSION

The aim of the study was to evaluate the effectiveness of computer assisted diversional therapy on pain and behavioural responses among preschool children attending OPD at Masonic Hospital at Coimbatore. 200 samples were selected for the study using purposive sampling technique. The data as collected using Wong Bakers Face pain scale and Observed Child Distress Scale and statistically analysed.

This chapter attempts to discuss the findings of the study as per the following objectives. these Findings of the study were discussed under the following.

OBJECTIVES

1. To assess the post test score of pain and behavioural responses during veni puncture procedures among preschool children in experimental group.
2. To assess the post test score of pain and behavioural responses during venipuncture procedures in control group
3. To compare the post test score of pain during veni puncture procedures among preschool children between experimental group and control group.
4. To compare the post test score of behaviour response during veni puncture procedures among preschool children between experimental group and control group.
5. To find the association between pain during veni puncture procedures among preschool children with their selected demographic variables in experimental group.

6. To find the association between behavioural responses during veni puncture procedures among preschool children with their selected demographic variables in experimental group.

DESCRIPTION OF DEMOGRAPHIC CHARACTERISTICS OF PRESCHOOL CHILDREN UNDERGOING VENI PUNCTURE PROCEDURES IN EXPERIMENTAL GROUP AND CONTROL GROUP

With regard to the age group 3-4 years were 25 (25%), 4-5 years were 41 (41%) and 5-6 years were 34 (34 %) in experimental group. With regard to the age in control group 3-4 years were 35 (35%), 4-5 years were 34 (34%) and 5-6 years were 31 (31 %) in control group.

According to the sex of the child, 58(58%) of the children were males and females were 42(42 %) in experimental group. According to the sex of the child in control group, 47(47%) of the children were males and females were 53(53 %).

With regard to the area of residence 81(81%) of the children living in the urban area and [19%] of the children live in the rural area in experimental group. With regard to the area of residence in control group 80 (80%) of the children living in the urban area and 20 (20%) of the children live in the rural area.

With regard to the type of family 76(76%) of the preschool children belong to nuclear family and 24(24%) of the children belong to joint family in experimental group. With regard to the type of family in control group 77(77%) of the preschool children belong to nuclear family and 23 (23%) of the children belong to joint family.

With regard to the birth order of the child 44(44%) of the children are first born, 50(50%) of the children are second born, 6(6%) of the children are third born in the family of experimental group. With regard to the birth order of the child in control group 54(52%) of the children are first born, 41(41%) of the children are second born, 7(7%) of the children are third born in the family.

With regard to the religion 65(65%) children are Hindu, 19(19%) are Christians and 16(16%) are Muslims in experimental group. With regard to the religion in control group 66(66%) children are Hindu, 20(20%) are Christians and 14(14%) are Muslims.

With regard to the educational status of the mothers 3(3%) belongs to mothers with primary education, 22(22%) belongs to mothers with higher secondary education, 74(74%) belongs to mothers with graduation and 1 (1%) child belongs to mothers with no formal education in experimental group. With regard to the educational status of the mother in control group, 6(6%) belongs to mothers with higher secondary education, 20(20%) belongs to mothers with graduation and 74(74%) child belongs to mothers with no formal education.

With regard to family monthly income 1(1%) child belongs to the family belonging to the income group of Rs.5001-6000/-, 15(15%) children belong to the family with the income group of Rs6001-8000/-, and 84(84%) children belong to family with the income group of Rs8001-10,000/- in experimental group. With regard to family monthly income in control group 0(0%) children belong to family with the income of Rs.3000-5000/-, 4(4%) child belongs to the family belonging to the income group of Rs.5001-6000/-, 12(12%) children belong to the family with the income group of Rs6001-8000/-, and 84(84%) children belong to family with the income group of Rs8001-10,000/-

With regard to previous hospital experience 96(96%) children had previous hospital experience and 4(4%) children had no previous experience in experimental group. With regard to previous hospital experience in control

group 88(88%) children had previous hospital experience and 12(12%) children had no previous experience

THE FIRST OBJECTIVE: TO ASSESS POST TEST SCORE OF PAIN AND BEHAVIOURAL RESPONSES DURING VENI PUNCTURE PROCEDURES AMONG PRESCHOOL CHILDREN IN EXPERIMENTAL GROUP

Data analysis showed that among 100 preschool children, 9(9%) of the children had mild pain, 73(73%) of the children had moderate pain and 18(18%) of the children had severe pain during veni puncture and 91(91%) of the children had mild behavioural response, 9(9%) of the children had moderate behavioural response during veni puncture procedure. This finding was consistent with the findings of:

Gold JL,et.,al.,(2006),conducted a study on the effectiveness of virtual reality(vedio games) for paediatric pain distraction during IV placements. 20 children (12 boys and 8 girls) required iv placement for a magnetic resonance imaging/computed tomography scan were randomly assigned for 2 condition 1. Virtual reality (VR) distraction street luge (5DT), presented via a head mounted display, or 2. Standard care (topical anesthetics) with no distraction. Responses from the face pain scale revised indicates fourfold increase in effective pain within the control condition, o significant difference were detected within the VR condition. There was a significant amount of evidence supporting the efficacy of street luge as a paediatric pain distraction tool during IV placement an adequate level of presence, no simulator sickness and significantly more child parent and nurse reported satisfaction with pain management.

THE SECOND OBJECTIVE: TO ASSESS THE POST TEST SCORE OF PAIN AND BEHAVIOURAL RESPONSES DURING VENIPUNCTURE PROCEDURES IN CONTROL GROUP

Data analysis shows that among 100 preschool children, 2(2%) of the children had mild pain, 55(55%) of the children had moderate pain and 43(43%) of the children had severe pain during veni puncture procedure and 67(67%) of the children had mild behavioural response, 33(33%) of the children had moderate behavioural response and 0(0%) of the children had severe behavioural response during veni puncture procedure.

THE THIRD OBJECTIVE: TO COMPARE THE POST TEST SCORE OF PAIN DURING VENI PUNCTURE PROCEDURES AMONG PRESCHOOL CHILDREN BETWEEN EXPERIMENTAL GROUP AND CONTROL GROUP

Data analysis showed that the level of pain scores regarding video assisted diversional therapy among preschool children mean of 14.78(SD \pm 4.72) in experimental group and mean of 18.82(SD \pm 5.13) in control group respectively the experimental group mean level of pain score is lower than the control group. The independent 't' value was 5.5. which was significant at 0.05 level.

Laurie Barclay et al(2006) conducted a study on TV viewing has analgesic effects during venipuncture in children, In this study, 69 children aged 7 to 12 years undergoing venipuncture were randomized to receive no distraction procedure (controls), active distraction by their mother, or passive distraction by a television cartoon. After venipuncture, the mothers and children scored the intensity of pain during the procedure. Children's self-rated pain levels were 23.04 ± 24.57 in the control group, 17.39 ± 21.36 in the

maternal distraction group, and 8.91 ± 8.65 in the television group. The corresponding pain levels rated by the mothers were 21.30 ± 19.9 , 23.04 ± 18.39 , and 12.17 ± 12.14 . Both the mothers' and children's rating scores suggested that procedures performed during television watching were perceived as being less painful than procedures performed during active or no distraction. TV watching was more effective than active

Hence the research hypothesis (H_1) The mean post test score of pain in experimental group significantly lower than the post test score of pain in control group was accepted.

THE FOURTH OBJECTIVE: TO COMPARE THE POST TEST SCORE OF BEHAVIOUR RESPONSE DURING VENI PUNCTURE PROCEDURES AMONG PRESCHOOL CHILDREN BETWEEN EXPERIMENTAL GROUP AND CONTROL GROUP

Data analysis showed that the level of behavioural response mean score and standard deviation was 4.28 ($SD \pm 1.67$) in experimental group and 5.69 ($SD \pm 2.09$) in control group respectively. The experimental group mean level of behavioural response score was lower than the control group. The independent 't' value was 5.25. Which was significant at 0.05 level.

Mukesh Chandra Sharma(2007) conducted a study on effectiveness of two distraction technique in altering behavioural responses during immunization at Manglore. An experimental approach with quasi experimental design was used. The study was conducted at different immunisation clinics of Mangalore. The sample comprised of 60 children aged 1-3 years. The sample was selected using purposive sampling technique and randomly assigned to Group I(toy), Group II –music (rhymes) and Group III(control group). The result of the study showed that Group II had significant higher behavioural

response score than that of group I ($t_{38}=2.4897$, $P<0.05$). A toy can be used as a distracter in immunisation clinics to alter the behavioural responses while giving immunisation.

Hence the research hypothesis (H_2) the mean post test score of behavioural responses in experimental group significantly lower than the post test score of behavioural responses in control group was accepted.

THE FIFTH OBJECTIVE: TO FIND THE ASSOCIATION BETWEEN PAIN VENI PUNCTURE PROCEDURES AMONG PRESCHOOL CHILDREN DURING WITH THEIR SELECTED DEMOGRAPHIC VARIABLES IN EXPERIMENTAL GROUP.

Data analysis showed that there was a significant association with pain score when compared age of the child (chi square value $X^2 = 29.29$, $p<0.05$), religion (chi square value $X^2 = 11.8$, $p<0.05$).. There is no association with, sex of the child, type of family, birth order of the child, education status of the mother, monthly income and previous hospitalization of the child

The finding is supported by the study conducted by Heppler.K.,(2000)conducted a study to determine the distraction therapy for preschool children in cancer ward . In this study significant difference were found between experimental and control group as to mean age and sex of the children.

Hence the research hypothesis (H_3)There will be a significant association between the pain during veni puncture procedures among preschool children with their selected demographic variables in experimental group was rejected. Except for age of the child, religion.

.THE SIXTH OBJECTIVE: TO FIND THE ASSOCIATION BETWEEN BEHAVIOURAL RESPONSES DURING VENI PUNCTURE PROCEDURES AMONG PRESCHOOL CHILDREN WITH THEIR SELECTED DEMOGRAPHIC VARIABLES IN EXPERIMENTAL GROUP.

Data analysis showed that there was a significant association with behavioural responses when compared to education status of the mother (chi square value $X^2 = 328.33$, $p < 0.5$). There is no association with age of the child, sex of the child, type of family, birth order of the child, area of residence, religion, education status of the family members, monthly income and previous hospitalization of the child

The finding is supported by the study conducted by **Heppler.K.,(2000)** conducted a study to determine the distraction therapy for preschool children in cancer ward .in this study significant difference were found between experimental and control group as to mean age and sex of the children.

Hence the research hypothesis (H_4) There will be a significant association between the behavioural responses during veni puncture procedures among the preschool children with their selected demographic variables in experimental group was rejected. Except for education status of the mother.

CHAPTER VI

SUMMARY, CONCLUSION, IMPLICATION, RECOMMENDATIONS AND LIMITATIONS

This chapter is deals with:-

- Summary
- Conclusion
- Implications
- Recommendations
- Limitation

SUMMARY

The focus of the study was done to assess the effectiveness of computer assisted diversional therapy on pain and behavioural responses during venipuncture procedure among preschool children. The approach of the study was evaluative approach. The design used for the study was quasi experimental non equivalent control group post test only design.. The conceptual frame work based on Kathryn Barnard's parent-child interaction model. The subject were selected by non probability purposive sampling technique . 200 children within the age group of 3-6 years were selected, among which the first 100 children were taken for experimental group and the second 100 children were taken for control group. The demographic variables were collected before the venipuncture procedure. For the experimental group children were allowed to choose between the desired games and rhymes available and the computer assisted diversion was started before the procedure for a duration of 5 minutes, run for 5 minutes during the procedure and continued for 5 minutes after the procedure the total duration of the computer assisted diversional therapy was for 15 minutes, during which the pain was assessed by using Wong Bakers Face pain Scale and behavioural responses were assessed using Observed Child

Distress Scale. Collected data were analysed by using descriptive and inferential statistics.

MAJOR FINDINGS OF THE STUDY

Description of demographic characteristics of the preschool children undergoing venipuncture procedure in OPD in experimental group

Average of 41(41%) preschool children belong to the age group of 4-5 years in experimental group and 35(35%) belong to 3-4 yrs in control group.

Majority of 58(58%) preschool children were males in experimental group and 53 (53%) were males in control group.

Majority of 81(81%) preschool children lives in urban area in experimental group and 80(80%) of children live in urban area in control group.

Majority of 76 (76%) preschool children belong to nuclear family in experimental group and 77(77%) in nuclear family.

Highest number of 50(50%) preschool children was second born in experimental group and 52(52%) of children were first born in control group.

Most of the preschool children 65(65%) were Hindu in experimental group and 66(66%) were Hindu in control group.

Most of the parents of preschool children 74(74%) were graduates in experimental group and 74(74%) of mothers had no formal education in control group.

Majority of the parents of the preschool children 84(84%) had a monthly income of Rs.8000/--Rs10,000/- in experimental group and 81(81%) of children belong to parents with a monthly income of Rs.8000/--Rs10,000/- in control group

Most of the preschool children 96% had previous hospitalization in experimental group and 88% had previous hospitalization in control group.

Th study finding relieved that among 200 preschool children, 9(9%) of the children had mild pain, 73(73%) of the children had moderate pain and 18(18%) of the children had severe pain during veni puncture in experimental group and 2(2%) of the children had mild pain, 55(55%) of the children had moderate pain and 43(43%) of the children had severe pain during veni puncture procedure in control group

The study findings relived that among 200 preschool children, 91(91%) of the children had mild behavioural response, 9(9%) of the children had moderate behavioural response during veni puncture procedure in experimental group and 67(67%) of the children had mild behavioural response, 33(33%) of the children had moderate behavioural response during veni puncture procedure in control group.

The study findings showed that the post test mean score and standard deviation of pain in experimental and control group was 14.78 (SD+4.72) and 18.82 (SD+5.13) respectively. The independent “t” test score of pain was (‘t’ value = 5.5) which was significant at the level of 0.05.

The post test mean score and standard deviation of behavioural response in experimental and control group was 4.28(SD+_1.67) 5.69(SD+_2.09)

respectively, the independent “t” test score of behavioural responses was (“t” value =5.25) which was significant at the level of 0.05

The study findings revealed that the pain and behavioural responses during venipuncture procedure among preschool children were significant in experimental group.

The pain during venipuncture procedure shows that there is a significant association when compared to age of the child and religion $p < 0.05$ level. There is no association with age of the child, sex of the child, type of family, birth order of the child, religion, education status of the family members, monthly income and previous hospitalization of the child. Except age of the child (chi square value $X^2 = 29.29, p < 0.05$), religion (chi square value $X^2 = 11.8, p < 0.05$)

The behavioural responses during venipuncture procedure shows that there is a significant association when compared to education status of the mother $p > 0.05$ level. There is no association with age of the child, sex of the child, type of family, birth order of the child, area of residence, religion, education status of the family members, monthly income and previous hospitalization of the child, except education status of the mother (chi square value $X^2 = 328.33, p < 0.05$).

CONCLUSION

The present study assessed the effectiveness of computer assisted diversional therapy on pain and behavioural responses during venipuncture procedure among preschool children attending OPD at Masonic hospital in Coimbatore. Based on the statistical findings, the level of pain score during venipuncture procedure shows that the mean value of 14.47 ($SD \pm 4.72$) in experimental group and mean value of 18.82 ($SD \pm 5.13$) in control group the mean difference was 4.04 of the pain level, ‘t’ value of 5.5 shows high significance at $p < 0.05$ level. The behavioural responses among preschool children undergoing venipuncture procedure shows that the mean value of 4.28

(SD± 1.67) in experimental group and mean value of 5.69 (SD± 2.09) in control group with a mean difference of 1.41 of the behavioural response level, 't' value of 5.25 shows high significance at p<05 level. It is evident that computer assisted diversional therapy reduces pain ("t" value 5.5) and behavioural responses ("t" value 5.25) during venipuncture procedure among preschool children. The findings concluded that computer assisted diversional therapy during venipuncture may reduce the pain and behavioural responses among preschool children

NURSING IMPLICATIONS

NURSING SERVICE:-

The vital function of a paediatric nurse is to use effective diversional therapy during painful invasive procedures.

Tele visions can be used by the nurse to implement the services in the paediatric ward.

NURSING EDUCATION:

Educate the student regarding computer aided diversional therapy that will help the students in gaining knowledge and skill in using computers for diversion.

The findings would help student nurses to do a mini project using different kinds of diversion.

NURSING ADMINISTRATION

Clinical nurse and nurse educator should give in service education to update their knowledge regarding computer assisted diversion therapy.

Nurse administrator can conduct a workshop regarding diversional therapy for nurses working in paediatric settings

NURSING RESEARCH:

This study findings may be effectively utilized by the emerging researchers.

This study can be baseline for further studies to build upon.

RECOMMENDATIONS:

The similar study can be done in larger samples

A comparative study can be done to assess the effectiveness of computer assisted diversion therapy and other diversional therapies

The similar study can be done in hospitalized children during venipuncture procedure

LIMITATION:

The researcher has faced difficulty to get co-operation from the mothers, as it was time consuming during last minutes of the closing OP hours in the afternoon.

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JOURNAL STUDY

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APPENDIX – A



MASONIC MEDICAL CENTRE FOR CHILDREN

(A UNIT OF COIMBATORE MASONIC CHARITY TRUST)

232, RACE COURSE ★ COIMBATORE - 641 018 ★ PHONE : 2220663 (6 Lines)

FAX : 0422-2221765 ★ E-mail : info@masonichospital.org

Date :

03rd May 2011

To

The Principal,
Bishop's College of Nursing,
C.S.I.Mission Compound,
Dharapuram – 638 656
Tirupur Dist.

Madam,

With reference to your letter BCN/69/Per.File/4/2011 dt.20.04.2011 we wish to inform you that we will permit your student Ms.G.ElizabethCharlien Vijaya – M.Sc Nursing to conduct a study to **“Assess the effectiveness of computer assisted diversion in reducing the pain and behavioral responses during veni puncture procedure among pre school children “** in our Masonic Hospital.

A copy of this study report to be submitted to the hospital..

This is for your kind information.

Thanking you,

Yours faithfully,

(DR.R.KRISHNASWAMI)
CHIEF MEDICAL OFFICER

APPENDIX – B

LETTER REQUESTING EXPERT’S OPINION FOR CONTENT VALIDITY

From

Ms.G. Elizabeth Charlien Vijaya

M.Sc. (Nursing) II year,

Bishop’s College of Nursing,

Dharapuram.

To

Respected Madam/Sir,

SUB: Requisition for content validity of tool

I am Ms.G. Elizabeth Charlien Vijaya, M.Sc. (Nursing) second year student of Bishop’s College of Nursing, Dharapuram, under Dr. M.G.R Medical University, Chennai. As a partial fulfillment of my M.Sc. (N) Degree Programme, I am conducting a research on “A study to assess the effectiveness of computer assisted diversion therapy on pain and behavioural responses during veni puncture procedure among preschool children attending OPD in Masonic Hospital, Coimbatore" One of the initial steps of the research study is to develop a tool. I am sending the above stated for content validity and for your expert and valuable opinion.

I will be very thankful to return it to the undersigned.

Yours sincerely,

(G. Elizabeth Charlien)

Encl;

Certificate of content validity

1. Statement of problem, objectives, operational definition, hypothesis
2. Description of the tool and tool for data collection
3. Self addressed envelope

APPENDIX - C
CHILD HEALTH NURSING
LIST OF EXPERTS OF VALIDATION

- 1) **Prof. Mrs.Vijayalakshmi , M.Sc(N).,**
HOD,
Department of Child Health Nursing,
KG College of Nursing,
Coimbatore.

- 2) **Mrs. Shanthi , M.Sc(N).,**
Vice principal,
HOD of Child Health Nursing,
GKNM Institute of health science
Coimbatore

- 3) **Mrs .Emerensia, M.Sc (N).,**
Vice principal,
HOD of Child Health Nursing,
R.V.S. College of Nursing,
Coimbatore.


- 4) **Mrs. J.Kavitha, M.Sc (N).,**
Reader,
HOD of Child Health Nursing,
Sara Nursing College,
Dharapuram.

- 5) **Dr.R. Krishnaswami,DCH**
Chief medical officer,
Masonic medical centre for children
Coimbatore.

APPENDIX – D

Certificate for validity

This is to certify that “A study to assess the effectiveness of computer assisted diversional therapy on pain and behavioral responses during veni puncture procedures among preschool children attending OPD in Masonic hospital, Coimbatore” has been validated by me and found appropriate with mentioned suggestions.

Signature: 
Name: N. Vijayalakshmi
Designation: Professor

Certificate for validity

This is to certify that "A study to assess the effectiveness of computer assisted diversional therapy on pain and behavioral responses during veni puncture procedures among preschool children attending OPD in Masonic hospital, Coimbatore" has been validated by me and found appropriate with mentioned suggestions.

Signature: P. Shanthi


Name: P. SHANTHI

Designation: VICE PRINCIPAL

SHANTHI P.
VICE PRINCIPAL
INSTITUTE OF NURSING
G.K.N.M. HOSPITAL
COIMBATORE - 641 037.

Certificate for validity

This is to certify that "A study to assess the effectiveness of computer assisted diversional therapy on pain and behavioral responses during veni puncture procedures among preschool children attending OPD in Masonic hospital, Coimbatore" has been validated by me and found appropriate with mentioned suggestions.

Signature: 

Name: X. EMERENSIA

Designation: VICE PRINCIPAL.

Certificate for validity

This is to certify that "A study to assess the effectiveness of computer assisted diversional therapy on pain and behavioral responses during veni puncture procedures among preschool children attending OPD in Masonic hospital, Coimbatore" has been validated by me and found appropriate with mentioned suggestions.


Signature: 

Name: 

Designation: **Dr. R. KRISHNASWAMI, DCH,**
Reg. No. 38424
CHIEF MEDICAL OFFICER
Masonic Medical Centre for Children
COIMBATORE - 641 018.

Certificate for validity

This is to certify that "A study to assess the effectiveness of computer assisted diversional therapy on pain and behavioral responses during veni puncture procedures among preschool children attending OPD in Masonic hospital, Coimbatore" has been validated by me and found appropriate with mentioned suggestions.

Signature: 


Name: Mrs. Kantha J.

Designation:
Head of the Department
Paediatric Nursing



APPENDIX - E
CERTIFICATE FOR ENGLISH EDITING
TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation work, “a study to assess the effectiveness of computer assisted diversion therapy on pain and behavior responses during veni puncture procedures among preschool children attending OPD at Masonic hospital Coimbatore”, done by Ms. G. Elizabeth Charlien Vijaya, Msc. (Nursing) student of Bishop’s College of Nursing, Dharapuram is edited for the English language appropriateness by_____.


Signature
(P. SAMPATH)

P. SAMPATH, M.A., M.Phil., M.Ed.,
Lecturer in English,
Maharani Teacher Training Institute,
Dharapuram.

APPENDIX – F
TOOLS
PART - I
DEMOGRAPHIC VARIABLES

DEMOGRAPHIC DATA:-

1. Age
 - a) 3 -4 years
 - b) 4-5 years
 - c) 5-6 years
2. Sex of the child
 - a) Male
 - b) Female
3. Area of residence
 - a) Urban
 - b) Rural
4. Type of family
 - a) Nuclear family
 - b) Joint family
5. Birth order of the child
 - a) First child
 - b) Second child
 - c) Third child

6. Religion

- a) Hindu
- b) Christian
- c) Muslim

7. Educational status of parents

- a) Primary education
- b) Higher secondary education
- c) Graduate
- d) No formal education

8. Family monthly income

- a) Rs.3000-Rs.5000/-
- b) Rs.5000-Rs6000/-
- c) Rs6000-Rs.8000/-
- d) Rs.8000-Rs10000/-

9. Previous hospitalization

- a) Yes
- b) No

i. PAIN SCALE- WONG – BAKER FACES PAIN RATING SCALE



Phase 1						
Phase 2						
Phase 3						

SCORING FOR FACE PAIN SCALE

Level of pain	Score	Percentage
Mild pain	0-10	0-33
Moderate pain	11-20	34-67
Severe pain	21-30	68-100

i. BEHAVIOURAL RESPONSES- OBSERVED CHILD DISTRESS SCALE

s. No	Behavioral responses	Phase 1: from sitting in chair to tourniquet application		Phase2: from tourniquet application until needle insertion.		Phase3: from piercing skin to bandage application.	
		present	Absent	present	Absent	present	Absent
1.	Pain verbalization						
2.	Cry/screams						
3.	Request for termination of procedure						
4.	Refusing to assume body position						
5.	Muscular rigidity						
6.	Requiring physical restrains						
	scoring	6		6		6	
	Total score	18					

SCORE FOR OBSERVED CHILD DISTRESS SCALE

Level of behavioural responses	Score	Percentage
Mild-behavioural response	0-6	0-33
Moderate behavioural responses	7-12	34-67
Severe behavioural responses	13-18	68-100

APPENDIX - G

DATA COLLECTION PROCEDURE

Data collection procedure

The demographic data was collected from the parents before the veni puncture procedure

The computer assisted divisional therapy was given using 3 stages

- Before the veni puncture procedure
- During the veni puncture procedure

This stage was divided into 3 phases during which pain and behavioral responses was assessed using wong bakers face pain scale and observed child distress scale.

- After the veni puncture procedure

the total duration of the veni puncture lasted for 15 minutes

APPENDIX - H
PHOTOS
BEFORE THE PROCEDURE



DURING THE PROCEDURE



AFTER THE PROCEDURE



APPENDIX - I

LIST OF GAMES, VIDEO AND RHYMES

Games:

1. Purple palace
2. Tarzan
3. Pokemon dragon ball
4. Robin hood
5. Under cover
6. Demo rash
7. Dress up
8. Bake a cake

Video

1. Gummy bear muki
2. Gummy bear football
3. Gummy bear chuchu
4. Gummy bear i love u
5. Chip and dale dance
6. Dora buji
7. Zhu zhu abc
8. Poppys childrens song tamil
9. Pattampoochi children's songs tamil
10. Sid the science kid
11. Pocoyo volume 2

Rhymes

Nursery rhymes collection volume 1(35 rhymes) Tamil

Nursery rhymes collection volume1(40 rhymes) English.

The babana song by wigilibilli

Wanna go home by wigibilli